INDIA RUBBER WORLD

CAOUTCHOUC GUTTA-PERCHA

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GOVERNMENTAL SUPERVISION IN PLANTING.

THE general public very rarely have or can be expected to have an intelligent idea concerning the relative importance of governmental departments. If one, for instance, were to suggest to the average man that a department of agriculture could be and should be of more value to a country than any other department, the statement would be scoffed at. It takes very little explaining, however, to prove that the basic wealth of any aggregation of people comes from the ground, in fact is founded upon agricultural products in a great measure. It is, therefore, not only the privilege but the duty of a government to make its agricultural department an efficient, vital director and adviser of the agriculturalist.

These thoughts are prompted by a mental survey of what the government of Great Britain has done for her colonies through her Imperial Departments of Agriculture. The striking illustration of the wonderful success of rubber planting in Ceylon and the Federated Malay States will at once occur to the reader.

It is a curious fact, however, that striking illustrations very rarely gauge even in small measure the values of such work. Were it possible to take a census of mistakes prevented—a list of costly blunders avoided—due to the research, the knowledge and the sound advice furnished planters by British Agricultural Departments the sum would be enormous.

Take, for example, our near neighbors, the West Indian Islands. The planters unguided would have covered those fertile islands with many sorts of rubber producers unsuited to climate or soil and perhaps both. With an alert, capable agricultural department, however, in the hands of men trained in such work, most of the planters were persuaded not to go heavily into any rubber producer until it had been thoroughly tried out and proved a success. This often entailed much waiting and disappointment, but it literally saved millions.

Today the areas where *Castilloa elastica* will grow are absolutely defined. Such islands as Dominica, whose sheltered, moisture-laden valleys are suitable for the *Hevea Brasiliensis* are plainly indicated because already tested. The dryer islands like Antigua, where there is a probability of a successful cultivation of the *Manihot dichotoma,* are undergoing the same searching, conscientious, experimentation.

It should be remembered that rubber, to these departments, is only one item. The same careful work is put upon every agricultural product and incidentally the broad knowledge thus gathered, particularly in relation to the many enemies to plant life, is of the greatest value to the rubber planter.

It is a curious fact but the agriculturist himself is often times the man who least appreciates the restraining influence of the specialists connected with his department of agriculture. He is very likely to look with scorn upon the man who spends precious hours in the detection of fungi or weeks in studying the life habits of some insignificant moth. He, too, is apt to think that his own agricultural society or grange really knows much more about growing things than does any college product, who never has or never will run a plantation for a livelihood.

Of course he is wholly wrong, both in his estimate of the value of the scientifically trained one and of his own society. An association of farmers or rubber planters that will work with an agricultural department, criticizing, suggesting and informing is of the greatest use, not only to the department itself but to the individual members. Where the best results are obtained it will be found such a community of purpose is always present.

THE CRUDE RUBBER OUTLOOK.

THERE is not at the present time that universal excitement over crude rubber matters that existed a year ago, when rubber was quoted at three dollars a pound; when it looked as if the motorist would have to sell his car to buy his tires, when rubber bands looked out of place on any desk not made of solid ma-

hogany, and when wet feet stared everybody in the face. At that time the matter assumed such importance that the daily press recklessly encroached on its police and sporting space to talk about the rubber situation.

The excitement has in the interim materially subsided. Rubber is now selling nearer to its normal figure, with a comfortable world supply of 6,000 tons, and a "famine" is no longer imminent. But with the constantly widening space that manufactured rubber is occupying in modern life, the question of an adequate supply of crude material is always interesting. Sixteen years ago the entire annual rubber supply of the world amounted to 35,000 tons, of which about one-half, or 17,000 tons, came to this country. Seventy per cent. of that was used in the manufacture of rubber boots and shoes, the rest going into a miscellaneous assortment of rubber goods. The amount of rubber consumed in the manufacture of tires was almost negligible, certainly not reaching 5 per cent. But all that is changed, and while we received in this country last year about 42,000 tons of rubber, 60 per cent. of that went to the tire manufacturers, and the rubber footwear men, manufacturers of mechanical goods and druggists' sundries, and all the others together, only got 40 per cent. of the rubber imports.

The demand for articles of all kinds manufactured from rubber has increased with every year, and the demand for tires has grown with great rapidity, while the supply of crude rubber has increased very slowly. For instance, the consumption of tires in 1908 increased 150 per cent. over the preceding year, and in 1909 showed a still further increase of 100 per cent., while during those same years the crude supply increased only 5 per cent. each year. While during the year just closed the demand for tires decreased slightly from what it was in the previous year, this condition is obviously only temporary. The automobile has now taken its place among the necessaries of life—food, raiment and shelter being relegated to the luxuries—so no permanent relief can be expected from a diminished demand for tires, nor is it at all likely that people are going to use fewer hot water bags or wear fewer rubber boots. If there is any relief it must come from an increased crude rubber supply.

Now the outlook is that there will be an increased supply, but that it will come slowly. Of the 73,000 tons of crude rubber produced last year, 38,000 tons came from Brazil. That is, of course, all wild rubber, gathered along the tributaries of the Amazon. It is estimated that only one-tenth of the possible rubber supply of Brazil has ever been tapped. If this is true, there are 400,000 tons of excellent rubber along the Amazon which could be taken out each year. But the difficulties are so great—the necessity of employing only native labor, the great expense of equipping rubber-gathering parties and the primitive methods that still obtain—that it is extremely questionable whether the supply from that quarter will materially increase for some years. In the past fifteen years the output from the Amazon has increased at the rate of about 6 per cent. a year. Undoubtedly with the increased incentive of higher prices, the production will grow more rapidly, but hardly more than 10 per cent. a year.

Over a quarter of the rubber supply, or about 18,000 tons a year comes from Africa, but there is little likelihood of any increase from this quarter, both because of the suicidal policy of destroying the vines in order to get the rubber and because the more humane methods now employed in the Congo are not likely to be as productive as the exacting, not to say, barbarous practices which are said formerly to have been in vogue. As a matter of fact, the supply from Africa decreased during the past year.

The largest increase in rubber production will undoubtedly come from the plantations in Ceylon and the Straits Settlements. This rubber has but recently become a factor in the situation. Four years ago only a few hundred tons had ever been exported from the Far East. In 1910 the exports from this region amounted to 10,000 tons. It is expected that the present year will see this increased to 15,000 tons, and men familiar with the situation in Ceylon and the Malay Peninsula predict that there will be a further increase of 3,000 or 4,000 tons a year for the next ten years.

The product of the Guayule shrub of Mexico amounted last year to 15,000 tons, but as the shrub is destroyed in extracting its latex and as it has not yet been proved whether it can be readily and quickly reproduced, this Mexican product is an uncertain factor in estimating future supplies. The immediate available increase must come, therefore, from the Amazon and the Far East, the two making a combined annual increase, for the next few years, of about 8,000 tons, or a trifle over 10 per cent. of the world's present supply.

With the present constantly increasing demand it is fairly obvious that plentiful rubber is a condition not likely to be realized in the immediate future. Five years from now, when the plantations now in their infancy—or perhaps more properly in their adolescence—have reached a productive age, the story may be different.

THE SERVICES OF A CHEMIST.

THE fact that a large number of progressive rubber corporations have during the past year considered the engagement of a chemical engineer or even a laboratory chemist prompts us to make some observations on the compensation offered to these "advisory" employees. The chemical engineer may be viewed as the running mate of the superintendent. If we accept this as a rational possibility, we might add that the superintendent must turn out a certain volume of goods per week, and see that the cost of labor is kept as low as efficiency will permit. The chemical engineer must give the superintendent raw materials which measure up to a certain standard, must trace defective products to sources not

immediately visible to the naked eye, and must adjust the chemical processes in order to maintain the health of the operatives and indirectly make it possible for them to render the most efficient service.

We will usually find that the superintendent is a man who has been in the world of commerce and industry since the day he left preparatory school. This has made it possible for him to gain a fund of practical, empirical information and to be almost if not totally self-supporting since the day he left school. After his preparatory he entered college for a four-year course, which led to the certificate for "Bachelor of Science in Chemical Engineering." If he so desires he may spend two or even three years additional at a university, and learn the methods which are used in research work, in discovering the cause of certain effects. We might call it Chemical Philosophy, or, to use a factory expression, we might call him "trouble man for chemical processes." This is the work which develops in a chemist the bumps of "ingenuity," "initiative" and "farsightedness," and these are after all, the properties which make a chemist of indispensable value to the manufacturer who has a desire to increase production and lower the cost of production while increasing the quality of his products.

A chemist who cannot lay claim to these properties is of very doubtful efficiency as a chemical engineer in a rubber mill. Now let us turn from these necessary qualifications to the "dollars and cents" side of the course which was necessary to obtain the same. The total expense of the college course has averaged for each year between $300 and $400. This may then be multiplied by the number of years which we would allow our student, say four years preparatory school and six years of college study, at the end of which he has reached his twenty-fifth year. From this data we obtain the figure of $4,000—for educational expenses. Next we may figure the earning capacity of an intelligent man (between the ages of 15 and 25) as averaging $1,000 per year. In total, an intelligent man would earn in these ten years, in round numbers, $10,000. His living expenses are equal to or less than those of a college student, so that these items counterbalance. The trained chemist at the age of 25 finds himself without these $10,000 and without these $4,000. He has, however, invested time and labor and thought equivalent to this amount in a thing which we may call "knowledge."

This brings us to the still more interesting question: "What interest does an intelligent manufacturer expect to receive from his invested capital?" You may answer 6 per cent. or even 12 per cent. If we take the lesser rate, we find that $14,000 should yield $840. This you will note is not the earning capacity of a graduate chemical engineer, but only the fair interest to which his invested capital entitles him. To this we may add whatever we consider to be a fair salary for an employee who makes it possible for the corporation to save from $5,000 to $100,000 per annum. The question, which is a logical consequence of the last statement is this: "What percentage of the total saving wrought by a chemist should be paid to him for his services?", and the answer to this query is probably found in the law of supply and demand. Thus, if it is possible to secure the services of a carefully trained man, twenty-five years of age, for the same money that is paid to a good stenographer, this would be equivalent to the statement that this university trained chemical engineer was (in this world) entitled only to the interest on his investment, but was impotent to earn a fair salary over and above that sum. These thoughts are an outcome of various inquiries which have been made during the past year for rubber-works-chemists and the "wages" which have been offered. In certain instances, the corporations admitted that they had exhausted their fund of information, and had therefore decided to draw into their works an expert rubber chemist to supervise the processes, examine the raw materials and turn out products measuring up to definite specifications.

The advent of the chemist in the rubber works took place but a short time ago; in fact, it was not until 1900 that any notable number of firms manifested any interest in the matter. After the university trained chemist has invested time and money in studying methods of investigation, the manufacturer is well justified in making an appropriation which will insure the highest dividends.

COMPETITION OR RESTRAINT.

THERE has been for years an accepted dogma that "competition is the life of trade." As it stands the phrase means not only that which is fair, honorable and intelligent, but dishonest, suicidal criminal competition as well. The truth is, that competition is often a serious injury, and sometimes the death of trade. In the rubber business one needs only to hark back to the days of rubber car springs to have a conclusive example of how keen competition may damage and destroy. Unfair and foolish competition is always a curse, just as grasping and selfish "restraint of trade" is an evil. Whether either can be wholly controlled, is a question yet to be answered. So far, manufacturers who follow economical and original methods of manufacture, and who possess the ability to market goods of unvarying quality under registered brands, suffer the least, either from competition or restraints. It would be a calamity if competition were to cease out of the land, for it would mean the paralysis of effort, the death of invention, while the abolition of all trade restraints would result in industrial anarchy.

WHY SHOULD ANYONE DELIGHT in calling a rubber-soled shoe a "sneaker"? Possibly, when the term was first coined, if the setting was right and the utterance timely, it was worth a laugh. But its constant iteration has worn off all of its mirth producing significance, and the word at present is neither cute slang nor good English. It is descriptive, of course, if the wearer sneaks. But it is not euphonic, elegant, nor in good taste. If it is persisted in the dictionaries will in time be compelled to adopt it—another stumbling block in the way of pure English.

AS A COAGULANT for the latex of *Ficus elastica*, Dr. O. v. Faber, head of the Sugar-Laboratory in Soerabaja, Java, recommends the following mixture: Cream of tartar, 3 per cent.; formaldehyde, in the shape of formalin, 0.5 per cent.; carbolic acid, 0.5 per cent.; water, 96 per cent. The cost of a bottle of the mixture is said to amount to but a few cents.

REFRIGERATION IN RUBBER MANUFACTURE.

THIS was the title of a paper communicated to the International Refrigeration Congress held last October at Vienna. From the translation of it which appeared in *La Revue Générale du Froid* for December, 1910, published at 9 Avenue Carnot, Paris (17) we give herewith the following fairly exhaustive summary of its contents.

There are two applications of refrigeration in the rubber industry, one in connection with the manufacture of fine cut sheet and the other with the recovery of naphtha from spreading machines. With regard to England the most extensive and widely distributed application of these freezing processes is found in the various card cloth factories in Lancashire and Yorkshire as in these works the freezing machinery is very generally installed for the double purpose of condensing the naphtha from the spreading machines and of consolidating the circular rubber blocks preparatory to their being cut into sheet. In these works, however, as in the few large rubber works where fine cut sheet is produced, there is considerable variation in the details of the refrigeration machinery and process adopted.

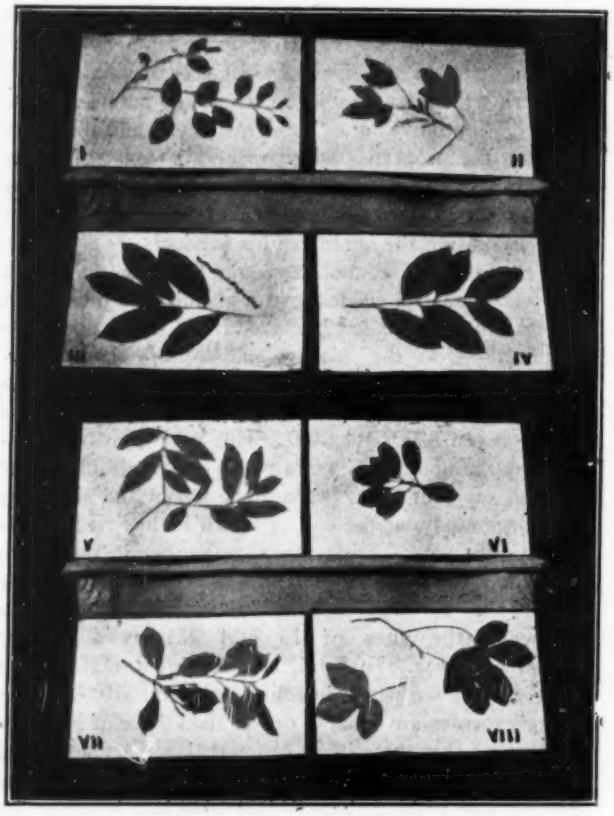
With regard to cut sheet, a moderately low temperature suffices for perfect solidification of the block to the core. If the temperature is too low the block would be of uneven consistency, as the sudden solidification of the outside would prevent the cooling of the interior which would remain soft and unfit for cutting. The best way of freezing a block is to put it in the open air in winter weather, but as the British winters are very variable and as the demand for cut sheet is general throughout the year, all the factories have found it necessary to employ refrigeration, and nowadays there are no summer stoppages in England at works where this was not uncommon in the past, as the modern procedure includes refrigeration of the work rooms. The author disclaims any intimate knowledge of the state of affairs regarding refrigerating on the Continent or in America, and does not claim that present-day procedure in England represents the latest improvements, though he claims that English cut sheet still holds the premier position as to quality. Alteration in refrigerating procedure might possibly be advantageous as regards economy, but he does not look for any improvement in the quality of the product.

It is not unnatural that the author should feel compelled to show some reserve with regard to giving details of the procedure at the factories, but even in the absence of full details the descriptions which follow are of interest. At the india-rubber works of Messrs. Chas. Macintosh & Co., Limited, of Manchester, the freezing of the blocks was effected for many years by immersion in the well-known mixture of ice and salt. Now, however, the firm have a very complete installation which includes an ammonia machine for freezing the blocks and also a sulphurous acid machine for cooling the large workroom in which the cutting machines are placed. The ammonia machine is situated in a chamber insulated with charcoal, and the blocks stand herein for a period of time which represents a considerable saving compared with the ice and salt method. The workroom is also insulated with charcoal and kept at a temperature of about 50 degs. Fahr. during the summer months, the water dripping on the knives being also cooled. Sheets, of which 160 go to the inch, are now being cut in summer in this room. At the card clothing works of Messrs. Horsfall & Bickham, at Pendleton, Manchester, the arrangement is rather different. Here the artificial freezing of blocks was initiated about 40 years ago, the plant being designed also for the recovery of naphtha. The freezing machine is after Siddeley & Mackay's patent, in which ether is used, and was put in by the now defunct firm Arrowsmith, Siddeley & Co., of Liverpool. These machines in the various card cloth factories give a uniform recovery of 50 to 60 per cent. of the naphtha used. For freezing the blocks a wooden tank, 12 ft. square, is set into the ground and is well insulated by sawdust. The tank is filled with brine circulating from the refrigerating plant, and the circular blocks are put into tightly fitting iron cases fixed in the tank. The brine pipes passing through the cutting room assist in reducing its temperature.

At the card cloth factory of Messrs. John Whiteley & Sons, of Halifax, Yorkshire, a branch of the English Card Clothing Company, an ether machine is used for freezing the blocks though the proess adopted differs somewhat from the two to which reference has been made. H. L. TERRY, F. I. C.

"THE INDIA RUBBER WORLD" HERBARIUM.

THE illustration shows some of the many specimens of leaves and flowers of rubber producing trees which were pressed and mounted in the Botanic Gardens, Trinidad, by a botanist who is specializing on rubber producing species. They are



FROM "THE INDIA RUBBER WORLD" HERBARIUM.

mounted on Bristol board, 12 x 18 inches, are glass covered and framed. They are notable as being exceedingly perfect and form the nucleus of a new feature of THE INDIA RUBBER WORLD library—a rubber herbarium. The species shown in the illustration embrace the following well-known rubbers:

No. I. *Cryptostigia grandiflora.*
No. II. *Hevea Brasiliensis.*
No. III. *Castilloa elastica.*
No. IV. *Funtumia elastica.*
No. V. *Landolphia Kirkii.*
No. VI. *Ficus elastica.*
No. VII. *Mimusops globosa.*
No. VIII. *Manihot Glazovii.*

THE UNITED STATES consul-general at Hong Kong states that an official report estimates the number of Pará rubber trees under cultivation in Cochin China at over 1,000,000, of which about 15,000 are being tapped.

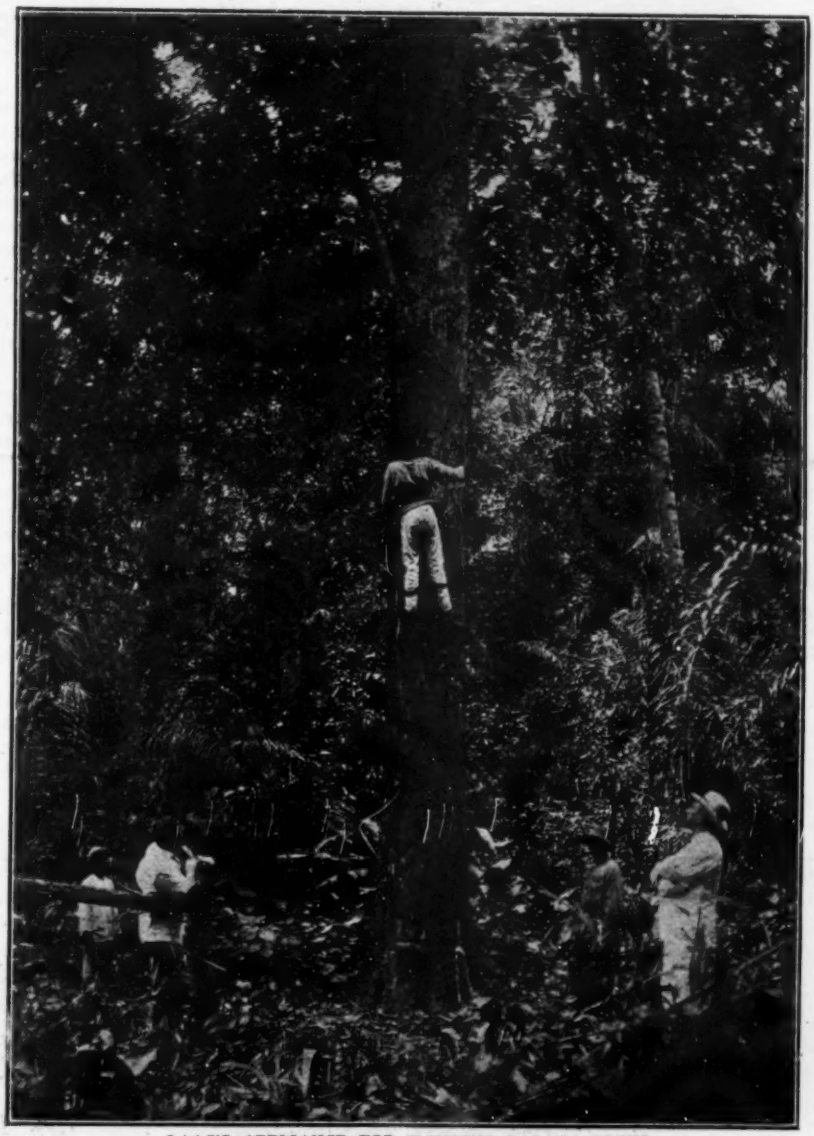
India-Rubber in Dutch Guiana.

By The Editor of "The India Rubber World."

THIRD LETTER.

A Morning Ride to the Balata Pier.—Dutch Negro Workmen.—Government Balata Concessions.—Bush Negroes.—Balata Trees 400 Years Old.—Locating the Trees.—Balata Crews.—Tapping.—Coagulating.—Bringing the Gum to Market.

VERY early one morning the Balata Man came around in a stylish little trap drawn by the liveliest horse that I had yet observed and invited us to go out and inspect a shipment of balata that had just arrived from the interior. Our acceptance was prompt and grateful. We whirled down Keizerstraat, which was crowded with men and women on their way to work, down by the huge market sheds where sat scores of country negroes with baskets of fruit, eggs, poultry and every variety of tropical edible, animate and inanimate, which could possibly find sale in the city. Then out through the suburbs and up to the balata warehouses.



LAAG'S APPLIANCE FOR CLIMBING BALATA TREES.

Balata arrives in bales weighing about 250 pounds each, the sheets folded together, piled up and then bound with bush-rope. One of the first things down on the receipt of a shipment is the inspection. The sheets are cut apart, partly to allow of further drying, and partly to detect foreign material, particularly sand. It is then baled again and weighed, the government royalty paid and it is ready for shipment abroad. It is here also that boats are outfitted for balata gathering and for the gold fields. One boat was loading while we were there. It lay some eight to ten feet below the pier and one negro and four coolies were trying to induce a mule to step up on a narrow plank and then descend into the boat. The mule knew that the plank was so awkwardly placed that it would slide off, and wisely refused, so they blindfolded her with a piece of burlap so loosely woven that she could see right through it. Then with a man down in the boat pulling at the halter and four pushing from behind she suddenly jumped and landed safely in the bottom of the boat, incidentally catching the man below by surprise and knocking him heels over head under one of the seats, and that is about the way the workmen do everything. They are slow, clumsy, and lack mechanical ability. It does not do to be too impatient or to try to hurry them, for then they hasten but always do the wrong thing, and their misdirected energy and ingenuity in accomplishing what you do not want done is appalling. They are willing workers and also exceedingly willing loafers.

The Balata Man told of being far up the river at one time with a lot of balata awaiting shipment. This, some negro boatman agreed to take to Paramaribo for twenty guilders. It was seven days' journey and they had been four days rowing when they were overtaken by a steam launch. This they hired to tow them the rest of the way, contentedly paying twenty guilders for the service.

The balata lands are almost wholly owned by the Crown, but are exploited only by individuals or companies under government concessions. The *concessionaires* pay ½ cent per hectare (2.471 acres) for prospecting. Then they pay 4 cents per hectare for ground rent. Added to this is 4 cents per kilogram export tax which must be paid within eight days of its receipt. The only other export tax in Dutch Guiana is a small one on gold. It is probable that when cultivated rubber is produced in quantity it will be required to bear its *pro rata* of

ALONG THE RIVER BANK.

BALATA BOAT.

the state burdens. The policy of the government has never been to embarass the planters; on the contrary it has helped in many enterprises, even going so far as to loan money at a low rate of interest to many of the planters whose estates suffered through disease.

Speaking of Crown lands and the wilds, one at once remembers the bush negroes. They were once servants, perhaps slaves, who had gone into the hinterland and made little settlements where they live by hunting, fishing and as little farming as possible. In some respects they have lapsed into savagery. They speak a mixture of Dutch and Indian, a language of their own which is analagous perhaps to the pigeon English of the Chinese. They are tractable and friendly if treated well and are sometimes used by planters with excellent results. They are very honest and while they often borrow, a debt with them is a sacred obligation. Incidents are cited where a man has traveled miles to town with a little money accumulated penny by penny for a long time to pay a debt contracted by his grandfather years before.

I think it was Jenman who estimated that many of the mature balata trees that he saw in the Guianas were at least 400 years old. Whether he hit it within a century or so does not matter. Certain it is that the tree is of slow growth, and as an ordinary planting proposition is not to be considered for a moment. The tree which is locally known as the "bully" or "boela," is botanically the *Mimusops globosa*. It is found in French, Dutch, and British Guiana, in Venezuela and indeed in various parts of Brazil. It is very common in the Guianas, growing on sandy reefs that run in all directions through the lower country, and also along the margins of streams in the uplands.

The beginning of gathering is the exploration party that locates the trees. This consists of 3 or 10 men at 60 cents a day, under a foreman at 80 cents a day, who go out into the bush in September, October and November, and stay for weeks at a time, until they have located a section where the trees are thick enough to make gathering worth while. A report is made to the government concerning the location and the right to gather balata is obtained. The laws are very strict concerning tapping and destruction of the tree or over tapping is expressly prohibited. Only one-half of the bark area is tapped in one year, and that area is rarely tapped again. The reason is that the bark grows over the wounds in irregular forms, making it almost impossible to secure a surface that can be bled in a satisfactory manner.

The gathering or tapping begins in January. Bush negroes are not used in this work, nor are the coolies. The laborers are invariably town negroes who have been contracted for before the holidays. They have also secured advances of money of which they invariably spend every cent in Christmas and New Year's festivities. It is quite a task to round up these contract laborers and very often the police are forced to lend a hand in getting the expedition started. The food supply which the foreman looks after consists of flour, split peas, molasses, salt, fish, beef and pork, tobacco and matches, while each man carries *calabashes*, a 5-gallon tin can, a cutlass and a queer tin canister for a trunk. They go by boat up one of the many rivers which may take a week or two to the place they have picked out for the central camp. Here 25 or 30 men make their headquarters. As soon as the shelters are built, and they are erected very quickly, the tanks for coagulating are made. They are built on log foundation, the bottom being about 3 feet from the ground, and are shallow wooden pans 10 to 12 feet long and 6 to 8 inches deep. They are made from boards split from palm tree

BORDERS OF A BALATA FOREST.

BUSH NEGRO VILLAGE.

INDIANS MAKING CASSAVA BREAD.

trunks and the cracks are carefully stopped up with balata until watertight. A cover is also made to keep out the rain, and to prevent insects, twigs, etc., from falling in.

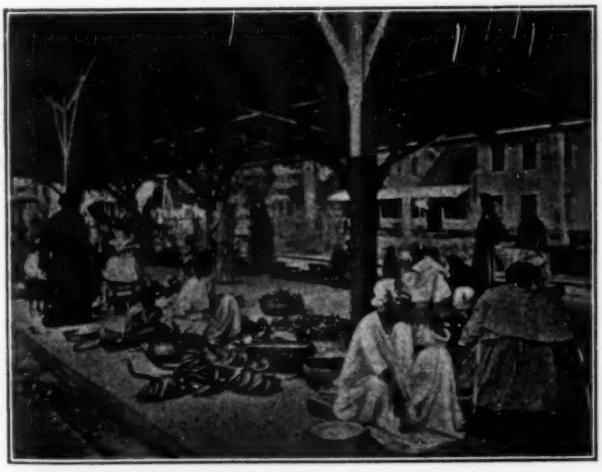
The collectors after breakfast spend a short time discussing the weather probabilities, and if it bids fair to be a day free from rain they scatter for the parts of the forest where they have located untapped trees. In addition to cutlass, calabashes and collecting can, each workman constructs a rough ladder of poles and bush rope.

Tapping is begun at the foot of the tree, where great gashes are cut in the tough bark, under which a *calabash* is placed. Then on up the tree the worker goes cutting deep grooves two inches wide, crisscrossing them so that the milk will flow down a main channel into the *calabash*. Eight or ten trees is a day's work for one man and from them he should fill the 5-gallon tin. This should give about 20 pounds of balata. The gatherer starts back to camp about 3 in the afternoon, empties the latex into his tank and spends the rest of the day far into the night in eating, smoking and story telling of the weirdest sort.

The gathering being done at the beginning of the rainy season, as the milk flows best then, great care must be exercised to avoid the frequent showers, as water injures the product and often stops coagulation. The drying or coagulation is very simple. The tank is set out in the sunlight for several hours and a thin skin soon forms on the surface of the milk. After a time when this is thick enough it is peeled off and hung up to dry. This film looks like raw hide and is of a dark red color. The dishonest gatherer will fold the wet sides of the sheet together before it has thoroughly dried out and by so doing gets greater weight. Normally, the drying continues for about a week, but the product shrinks for a month or more. The average gatherer brings in from 400 to 500 pounds, while experts in good sections have been known to gather as much as 1,000 pounds in a season. When the work is finished camp is broken, the balata is taken to Paramaribo; the men are paid whatever balance is due them, and they promptly and joyously spend it all in a single night.

The sheet balata from Suriname is the standard, and is worth much more than block, which latter is never as dry, and often contains impurities. Sheet balata costs to collect from 40 to 45 cents a pound; 20 cents of this goes to the laborer who is paid only for the gum he turns in. The other costs are a small commission to the foreman, general outfitting expenses, government tax, and so on.

USUAL METHOD OF TAPPING BALATA TREES.



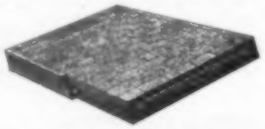
MARKET, PARAMARIBO.

Balata has been much slower in coming into use than has almost any rubber or gutta. For a long time it was classed among the intractable gums. In 1890 the world could find a use for only 200 tons of it. Little by little, however, it found uses chiefly as a substitute for gutta-percha, until in 1900, 400 tons were needed.

[TO BE CONTINUED.]

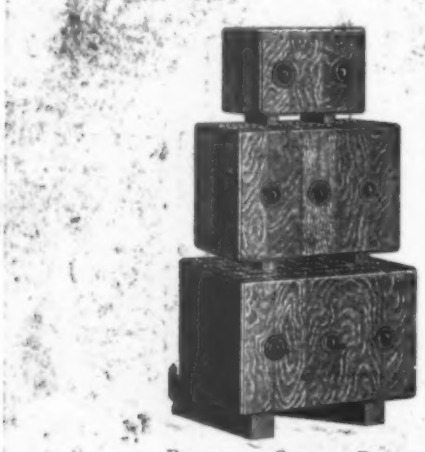
CUTTING BOARDS AND BLOCKS.

EVERY rubber factory however small has some place where cutting is done. It may be only a chopping block on which with die and mallet the work is done. Or it may be a great room where scores of skillful knife wielders stand over the latest types of cutting boards and turn miles of sheeted stock



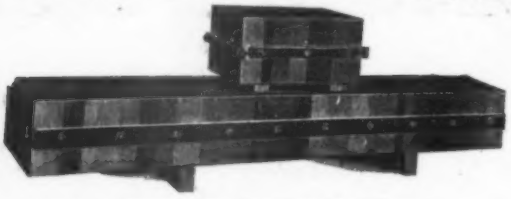
REVERSIBLE CUTTING BOARD.

into shapes adapted to making up. And this leads up to the subject of prepared surfaces upon which the cutting is done. It will be at once apparent that the substance of which they are made must be one that will not injure knife or die. Wood being the cheapest and most available, is what is generally in use. Some cutting, however, is done on hard slabs, some on sheets of heavy packing and some on zinc. But nearly all of it is on wood and the cutting block and board are today as scientifically



REVERSIBLE CUTTING BOARDS.

made as any intricate machine in the factory. As cutting with or across the grain would cause splintering, it is done on ends of boards. That is, strips of wood are placed end up and securely bolted together, giving a surface that cannot splinter and that finally wears away in fine powder; then it is planed smooth and is as good as new. Blocks for dieing out, both by hand and machinery, are made in the same way. Indeed, so great a business has this grown to be that factories are devoted to the production of these goods alone. They are situated where pine



DIEING OUT MACHINE BLOCKS.

and maple are plentiful and with great drying kilns and modern machinery they turn blocks out by the thousand. Not alone to the rubber trade do they cater, but to shoe, glove, envelope, harness and corset factories, to artificial flower makers, to packers and butchers, to stencil works and scores of lesser industries.

MORE ABOUT BALATA BELTING.

THE constantly increasing use of balata belting in the United States naturally prompts the inquiry as to why, up to the last year or two, its manufacture has not been in American hands. The answer lies first in the fact that most American rubber factories were equipped to make rubber belting, which they felt fully covered the field, and they were, therefore, averse to laying down a separate plant for balata work. The second reason is that they were unwilling to put into its manufacture the attention to fussy details, which is one of the chief reasons for the great success the English, for example, have made of the balata belting business.

Among the many reasons for the increasing use of balata belting is the fact that it is free from many faults which most other belts have. First, it is practically unaffected by atmospheric changes, and may, therefore, be used in paper mills and similar places where damp and moist atmospheres predominate. It is not affected by acid and other injurious fumes. It also remains pliable under almost every climatic condition, and therefore transmits practically the full horsepower at all times. It needs no pulley covering nor other article to make it adhere as do most other belts. In its manufacture, a more closely woven fabric is used, than in canvas belts coated with rubber or those which are treated by processes similar to, or by the Gandy process. This, of course, gives a belt of great strength, and one that is less liable to stretch.

In making this type of belt, the fabric is dried and then coated with balata composition in a solution. Such solvents as naphtha, benzol, or any solvent which will dissolve crude rubber, are used. The fabric is then run over what is known as a spreader, which is a device for spreading the cement on the fabric by the use of a rubber covered roll and an adjustable knife, which enable the operator to put on a thick or thin coat of cement and also to permit of using different thicknesses of fabric. After the fabric has gone over the roll and is coated with cement, it passes over a steam table or coils of steam pipes, which being heated quickly dries the cement. After the fabric has received the proper number of coats of cement it is then either cut into proper widths or is folded over upon itself to the thickness required, according to the width and horse power to be transmitted. When it is cut, this is done on a machine similar to that which is used in the manufacture of rubber belting. The plies are next pressed more firmly together, either by the use of a hydraulic press or by a set of rolls heated to the proper temperature. After this is done, the belts are practically finished as they are not vulcanized, which is why, in part, that the belt is so much more pliable and retains its life to such a remarkable extent.

We believe that the time is not far distant when many American manufacturers will take on the manufacture of balata belting. It will be the means of saving to themselves some business they are bound to lose if they do not do so. While it may never entirely supplant rubber and leather belting its use is rapidly growing, and no one who has once used balata belting will ever go back to any other. There are no especial secrets in the manufacture of this belting which the up to date manufacturer cannot guess, and as suggested in the beginning of this article, it is only due to the infinite care in the details of its manufacture that the foreign manufacturers have been enabled to monopolize this field.

ACCORDING to the annual report of the director of forestry of the Philippine Islands, for the year July 1, 1909, to June 30, 1910, there were included in the exports of forest products from the islands for the period in question, 157,731 kilograms (347,008 pounds) of rubber, and 95,082 kilograms (209,180 pounds) of gutta-percha. None of the gutta-percha and 225,526 pounds of the rubber, were exported to the United States.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

EARLY in January the price of fine hard Pará fell for one day, at any rate, to 5*s.* per pound, at which price a leading manufacturing firm told me they could get enough to cover their requirements for some time ahead. This price the culmination for the moment of a steady and continuous fall in values, though, of course, satisfactory to the trade, is by no means to the liking of shareholders in plantations in a stage of evolution and much less to company promoters who still have some properties up their sleeves. This, however, goes without saying, a point of greater interest and uncertainty being the cause of the decline. Here one is on thorny ground as unanimity of opinion by no means prevails among those whose position entitles them to credence. I do not profess to be behind the scenes myself, and the following explanation is merely the statement at second hand of one who has had special facilities for probing the situation. In the early months of last year, when it was foreseen by certain astute minds that the time had come for company flotation on a comprehensive scale, a good deal of rubber was kept back from the market, so as to keep prices at a high level. The lock up of capital was met by advances from the banks, both London and provincial, on the security of the rubber. After a time, when the price commenced to fall, owing to the obstruction of buyers, the banks required further securities which were forthcoming when hope existed that the setback would prove to be only temporary. As this did not take place, the natural result was that the rubber was gradually put upon the market. Of course, the normal factors of supply and demand also exerted their influence, but according to my authority the statement made last year to the effect that rubber was being kept off the market, was certainly barred, in fact, though at the time the existence of any such practice by capitalists was pooh-poohed by technical writers generally. Since writing the above, fine Pará has been down to 4*s.* 10*d.* [= $1.18] per pound.

THE PRICE OF RAW RUBBER.

THE forthcoming legal action to which I referred a few months ago may be expected to mature between now and Easter, and in the meantime it is not surprising that some projected commercial developments have been arrested. In the case of certain companies formed in the past to exploit patents concerned with the production of mechanical rubber goods on altogether new lines, the manufacture reverted to procedure, but slightly varying from that of the ordinary rubber works. It would not altogether surprise me to hear that reforming works, where equipped with ordinary rubber machinery, took to producing new rubber goods as part of their general business, thus coming into direct business competition with the established rubber works. In this eventually one can hardly prognosticate profits on the same scale as hinted at in a prospectus which is based on the exploitation of a patent certified as entirely novel by this or that eminent K. C., though not directly concerned with reformed rubber. An instance of this procedure will, I understand, be furnished by the Reinforced Rubber Co., Limited, who contemplate the manufacture of some ordinary mechanical rubber goods at their works at Hull. A new company, the Southern Rubber Co. (1910), Limited, was registered at the close of the year, with a capital of £90,000 in £1 shares with the stated objective of manufacturing and dealing in rubber gums, substitutes, natural or artificial, products of waste rubber, acting as selling agents, etc. A previous company, from which this has sprung, has been located for some time at Battersea, London, and its principal business has been the production and sale of certain reformed rubber goods, under royalty from the owners of Gare's patents. The location of the new company is at Willesden, not far, but in quite distinct premises, from the Simplex Rubber Co., Limited, the proprietors of Gare's patents. Mr. C. M. Greenwood and others prominently connected with the old company are on the directorate of the Southern Rubber Co., Limited, at Willesden. The action for libel brought by Mr. G. F. Berry, of the Premier Reforming Co., Limited, against Sir Chas. B. Lawes-Wittewronge, Bart, came before the High Court on January 19 and was adjourned at the close of the day at the suggestion of the judge, to see if an agreement could not be arrived at between the parties. This agreement was subsequently effected and the case was thereupon withdrawn. Briefly stated, the action arose through a letter from Sir Chas. Lawes-Wittewronge to some of the prominent newspapers the day after the prospectus of the Premier Company, Limited, appeared in December, 1910, imputing incorrectness to some of Mr. Berry's statements. The letter also stated that the master patent for reforming rubber was held by the writer, who had been working it for some time at the works of the Millwell Rubber Co., Limited, now located at Harpenden. This patent, I may say, is that of Roux, with which that of Karavodigue, is now associated, these patents being prior to that of Gare. I heard it the time that the public subscription to the Premier Company was decidedly affected by the above letter. I think I am right in saying that Sir Charles is the second baronet, the honor having been conferred on his father, for his services in connection with the scientific development of agriculture. Mr. Berry is a relative of Mr. Rawson, the promoter of and consulting engineer to the Premier Reforming Co., Limited. Mr. Rawson, who is a son of the late Sir Rawson-Rawson, K.C.M.G., has been for some time engaged in the flotation of companies.

REFORMED RUBBER.

ATTENTION was drawn to the insidious character of suction gas, at an inquest held in January, on a man employed at the works of the Rubber Heel Manufacturing Co., Limited, at Chatham street, Clayton, Manchester. Death was shown to be due to carbonic oxide poisoning, and seeing that the use of suction gas, which is odorless, is largely increasing, too much emphasis cannot be laid on the fact that it consists largely of this very poisonous gas. This company formerly concerned only with reclaimed rubber chemicals, etc., is now making heel pads on a large scale under the management of Mr. R. E. Gregory, late of Capon Heaton & Co., Limited, Birmingham, and formerly departmental manager at Chas. Macintosh & Co., Limited.

FATALITY AT A RUBBER WORKS.

IT has taken a long time to convince the railway companies that rubber solution, made with carbon tetrachloride, is non-inflammable and therefore not dangerous. At least, however, the point has been recognized, with the result of the removal of the very onerous burdens which have hitherto been imposed upon those who have forwarded this commodity by rail. I don't know exactly whether shipping companies have followed the railways, but they have always been very strict about rubber solution. Only a month or two ago a heavy fine and confiscation of the goods was ordered at Liverpool in the case of a shipment of channel cement, which was really rubber solution incorrectly described. At a later stage the weight of the penalty was largely reduced, though the enormity of the offense was insisted on. With regard to the use of carbon tetrachloride the price, as compared with naphtha, has always

NON-INFLAMMABLE RUBBER SOLUTION.

been against it and more recently attention has been strongly drawn to its toxicity and other disadvantages. I notice, however, in a recent patent by Messrs. Pichou and Truchelut of Paris, that they propose to add spirit of turpentine or some hydrocarbon of the terebenic series, to insure the stability of tetrachloride of carbon under conditions of use where, when used alone, it is apt to decompose. The non-inflammable quality is not affected by the turpentine. For rubber solution they also propose to use, with the tetrachloride of carbon, a considerable proportion of light petroleum spirit—some turpentine is added to this to prevent decomposition, and the adhesiveness of the rubber solution is augmented by the addition of an alcoholic solution of gumlac. This patent is seen to cover a good deal of ground, and its claims will doubtless be scrutinized by those who propose to utilize it. With respect to the adhesive bodies I have understood that rosin has been employed for some time as an addition to rubber solution, though I cannot say that I have any first-hand knowledge on the matter.

So our friends, the planters, are not to have it all their own way. An influential committee has been formed to see that at the forthcoming exhibition indigenous rubber receives that due meed of attention to which it is entitled, both by reason of its recognized quality and from the truth of its output compared with that of "its pushing and youthful rival." Perhaps some move of the sort is desirable in the case of an exhibition which takes shillings from the pockets of the public at its doors, and any exhibits or demonstrations, which have for their object the removal of misconception, can hardly be considered superfluous. At the same time it must be remembered that the casual visitor who owns a few shares in this or that plantation does not exercise any influence, beneficial or malevolent, upon the rubber markets. After all, it is the manufacturers who, though comparatively insignificant in number, put the values on the various brands of rubber, and as far as fine Pará is concerned it would be merely preaching to the converted for the Earl of Erroll and his colleagues to expound the virtues of the Brazilian product. With regard to the superiority of wild over cultivated Pará, for the best purpose of the trade things remaind *in statu quo*, in the manufacturer's opinion, despite erudite publications to the contrary from this or that laboratory. In the case, however, of other brands of rubber, especially those from East Africa, it may be a more difficult matter to keep the pushing plantation product in its proper place, though in view of the fact that the manufacturer must remain the final arbiter as regards demand and value, the association can hardly exert any great influence commercially. If wild rubber is being ousted from the markets through no fault of its own, but merely by the wiles of designing competitors, then the formation of the new association is called for in the interests of commercial morality. *Obita principiis* is a valuable maxim and granted the existence of the evil, no better opportunity than the forthcoming exhibition could be seized, in order to demonstrate to the public and the manufacturer alike, that the wild rubber industry is by no means in a moribund condition.

INDIGENOUS RUBBER ASSOCIATION.

After having had one of Warne's well-known crocodile tobacco pouches in use for a number of years, I decided the other day to replace it by one with a cleaner exterior. The intention matured at a suburban tobacconists where, after asking for a crocodile pouch, I went off with what I took to be one. I did not examine my purchase closely at the time, and was rather surprised to find next day that what I had got was the cobra pouch (registered) made in Austria. I don't think that there was any intention to mislead; my impression is that the woman knew very little about the various pouches in stock. But, be that as it may, I am not airing a grievance and only refer to the matter, because this Austrian product is the nearest approach to a genuine Warne crocodile rubber that I have come across in my experience. I can recall many trials which have been made, here and there, to produce a pouch equal to Warne's, but in my experience the result has always been unsatisfactory from one cause or another.

RED POUCHES.

On the morning of January 31 a serious fire broke out at the London premises of the Almagam, Limited, at 374 Euston road, damage to the amount of several thousand pounds being done. This company was floated during the rubber boom of last year to work a special process for retreading motor tires, the principal mills being at Harpenden, where all business in retreading will be carried on until the London premises have been put into order again.

FIRE AT A WORKS.

AN AWARD FOR PLANTATION PARA RUBBER.

For the best samples of plantation Pará rubber, shown at the International Rubber and Allied Trades Exhibition, opening in London in June, the *India Rubber Journal*, London, offers, as a prize a silver shield, value 100 guineas ($500).

Entries, restricted to countries exhibiting at the exposition, must be made to the Award Committee, International Rubber and Allied Trades Exhibition, 75 Chancery Lane, London, by Monday night, May 1, letters postmarked May 1 will be accepted.

The India Rubber Journal Shield.

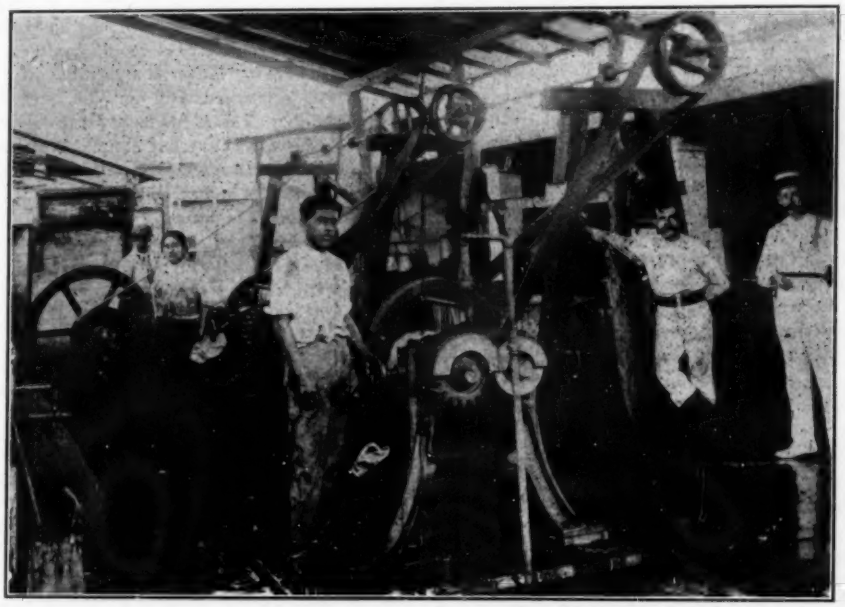
Exhibits, limited in number to three for each competitor, produced wholly on the property of and prepared for market by the exhibitor, must not weigh less than ten pounds, and must be in the hands of the Award Committee, Royal Agricultural Hall, London, IV., carriage paid, not before June 15 nor later than June 20. They will constitute a special group, classified as the *India Rubber Journal* Shield competition.

Mexican Rubber Notes.

NEW PROCESS FOR COAGULATING "CASTILLOA."

TO THE EDITOR OF THE INDIA RUBBER WORLD: At the recommendation of a leading rubber planter here, I take the liberty of giving you some information about my new process for the coagulation of the latex of *Castilloa*, since it is known to me that all novelties along this line are of interest to you.

In June, 1910, I obtained in Mexico a patent for the chemical working of crude rubber, and built, in company with Mr. Karl Schweickhard, general manager of the local house of Harburger & Stack, a New York firm, the very first factory for the development of this process; we have been working seven months with good results. Already, in spite of the tremendous increase in the price of crude rubber in the last year, which for a while made buying up of the latex impossible for us—we have shipped about 3,000 kilograms to the German market, for which we received an average price of 13 marks [= about $1.40, gold] per kilogram, and for the gum resin, which is a by product of the process, we were paid 7 marks [= about 75½ cents] per kilogram. You will therefore see that the product of this process realizes a notably better price than the Mexican scrap.



FACTORY WHERE DERN PROCESS WAS FIRST USED.

The operation of my process is as follows:: The latex which is bought up from agents in the plantations, is thoroughly cleaned in the wire sieve, the preserving powder prepared by me is stirred in, and then it is poured into cans, which are soldered up, and these are then ready for transport to the factory. Oftentimes these arrive in the factory only after 20 days' time or more, yet in good fluid condition, since the powder prevents the coagulation of the latex. Once in the factory, the latex is poured into great wooden containers and mixed with a substance which decomposes the resin and organic substances, in order to bring about more easily the separation of the same in the working in the engines. We possess here five rotary engines, which work the latex, and we have fifteen others in process of installation.

After the latex has for a certain time undergone in the wooden containers the influence of the chemical products, the rotary engines are filled with a gallon of latex, two liters of the compound necessary for the working added to it, the motor set in motion, and the engines operate with about 500 revolutions. After 20 minutes—often somewhat more—the rubber is ready. The pieces of rubber are then washed and pressed in the washing presses, then dried, and inside of 24 hours are ready to be shipped. The product left in the engines is passed through a cloth filter and is in a few days dry, when it is pressed, and is the so-called gum resin.

With such an outfit as we have, we can manufacture up to 600 pounds of rubber a day; that is, when we shall have the above-mentioned 15 rotary engines in operation; say, inside of a month. The expense of this process amounts to 5 cents, gold, per gallon of latex; the yield on an average is 32 per cent. of rubber, without the gum resin, which amounts to about 6 per cent.

I should very much like, through THE INDIA RUBBER WORLD, to draw the attention of plantation owners to this really practical process, and would willingly dispose of the royalty of this patent to any interested person outside of the state of Tabasco. This process is easily applicable to the latex of *Hevea*, only the formula is somewhat different, and with regard to the sale of this I have an agreement with an English firm.

WILLIAM F. DERN.

San Juan, Bautista, Mexico, Jan. 2, 1911.

[Editor's Note.—On physical examination, the sample of Castilloa rubber appeared to be unusually good. It was exceedingly tough and showed absolutely no signs of stickiness. The sample of gum resin was in sheet form, and resembled balata to a degree, although it was a little more elastic. It was wholly without tackiness, and would be of value in rubber compounding.

STILL ANOTHER MEXICAN RUBBER.

THE Durango Commercial Co. has been incorporated in Michigan, with headquarters at Detroit, in that state, to exploit the Mexican plant known locally as Palo Colorado and shown by recent experiments to contain rubber to an extent which the projectors of this company think will justify a liberal investment of capital. The attention of the Michigan people was attracted to the matter by an American civil engineer, long resident in Mexico, who became interested in the plant in the state of Durango. His reports led some of his friends in Michigan, a year or more ago, to make an investigation, for which purpose they started out from the city of Durango, on the Mexican International railway, with the result that a concession has been obtained of a large tract of land on the west side of the Sierra Madre range. The location has not been more definitely stated for publication. A prime mover in this development has been John R. Allen, professor of mechanical engineering in the University of Michigan, at Ann Arbor, who has taken some of the palo colorado rubber to London, where it was reported upon favorably. The officers of the Durango Commercial Co. are Joseph H. Hunter, president; Henry W. Campbell, vice presi-

dent; John R. Allen, secretary; and Herbert W. Knoble, treasurer. The additional directors are J. Wilfred Thompson and Emil E. Keller. The office of the company is in the Penobscot building, Detroit. A communication from a Mexican correspondent in this issue contains some details regarding the palo colorado plant, which is said not yet to have been classified botanically.

LITTLE KNOWN RUBBERS OF MEXICO.

TO THE EDITOR OF THE INDIA RUBBER WORLD: There has been recently a great deal of notoriety given to the different rubber and sap producing trees that grow along the Pacific coast of Mexico, but very little of the information can be considered as authentic, and it has been more prejudicial than beneficial. Such is the case with the notoriety given to the Palo Amarillo and Palo Blanco trees, which are known to contain a low percentage of rubber, and these trees are confounded with other plants that contain a much higher percentage of rubber. But on account of the general opinion existing that the two trees mentioned do not contain sufficient rubber to make its extraction profitable, the whole industry is condemned. It is my object to classify in a brief manner the several trees that are known to contain rubber, that grow in the states of Sinaloa and the territory of Tepic, and to show that there are trees that produce rubber in sufficient quantities to form the basis of a profitable industry.

Palo Amarillo.—There is very little Palo Amarillo existing on the Pacific; it is principally found in the states of Guanajuato, Durango, and Quertetaro. It is an anomaly that nearly every one who discusses rubber trees thinks that all the trees on the Pacific coast are Palo Amarillo. There is a very low percentage of rubber in this tree—insufficient to make it profitable.

Palo Colorado, or Chilte.—This tree is better known in Sinaloa and Tepic as Chilte. There it grows wild in abundance, and contains a very high percentage of caucho. From analyses made in Mexico City by Professor Villagran, it appears that this tree produces 37 per cent. of caucho, dry. Another analysis, made by Philip Schirdrowitz, PH. D., F. C. S., of London, gives the following result:

Moisture	26.44%
Resin	35.08%
Insoluble fibrous matter	1.20%
Rubber	37.28%

He says: "The separated rubber, a small sample of which I am enclosing, for your inspection, is in my opinion of a very fair quality and would, if obtainable at a reasonable cost, be of considerable commercial value. The separated resins are softish white crystalline bodies, which melt to a pale amber color, and I think it should be possible to find a market for them."

There is no doubt of the existence of enough trees from which to produce immense quantities of this rubber. One company now operating in the states of Sinaloa and Tepic have extracted 20 tons during the past two months, while merely teaching its employés how to extract it. One of the reasons why a good market has not been found heretofore is that the Indians collected it in small quantities, and sold it at a small price, but not in sufficient quantities to permit the market to depend on a steady supply. But now the immense tracts of land have been either purchased or leased, and the Indians have been stopped from gathering it.

Copal and Copalillo.—This tree is very similar to the Palo Colorado, or Chilte, the difference consisting mainly in the color of the tree, the Copal being of a dark earth color. It grows in the valleys principally, whereas the Palo Colorado grows up on the mountains. According to the different analysis made, the sap contains a much higher percentage of rubber than the Palo Colorado, averaging 52 per cent., dry. For many years the Indians near the coast have manufactured artificial flowers and curiosities from the dry sap, merely drying the milk, and forming flowers, small baskets, and the like, the color being a beautiful creamy white, and with a grain like ivory when dried. Several tons of this rubber has been shipped to England, where it fetched 58 cents, gold, per pound. B. N.

Torreon, Mexico, January 16, 1911.

MEXICAN PRODUCTION OF CHICLE.

THE output of chicle gum from Mexico—the chief source of supply—continues to increase, as shown by the following figures compiled from the annual statement of the federal treasury submitted to the congress now in session. Weights are expressed in metric tons and values in Mexican silver; the fiscal year ends June 30:

1905-06	*tons* 2,182	$1,696,523
1906-07	2,166	2,144,724
1907-08	2,295	2,251,520
1908-09	2,624	2,447,041
1909-10	3,173	3,409,567

In spite of the increasing production, there has been a large increase in the market value. As shown by the figures above, the exports for the last fiscal year were larger by 45 per cent. than in 1905-06, while the average value per ton increased in five years from $777.50 to 1,074.55—an advance of 38 per cent.

MADEROS PLANTING GUAYULE.

THE growing importance of the guayule rubber interest in Mexico was the topic of a recent conference between President Diaz and Ernesto Madero, a member of the important family of Madero concerned with guayule, according to an interview with a brother, Rafael Madero, printed in the *Mexican Herald*. After declaring that the late political troubles in Chihuahua were purely local in character, and with no sort of general significance, Rafael Madero is quoted as saying:

"My brother had an interview with President Diaz, but this meeting had nothing to do with the revolution. It was purely concerned with the guayule industry and concessions concerning it. You can see that we are not greatly worried about the outcome of this little uprising when I tell you that my brothers and myself are putting out thousands of acres of this rubber plant for future cutting. The exports of guayule now amount to something like $30,000,000 each year, against $14,000,000 of henequen and less of other products, so that we believe this rubber plant is destined to be the greatest agricultural factor in the republic.

"We are investing hundreds of thousands of dollars in plants for the manufacture of rubber from guayule and do you think we would do this if we believed the revolutionary propaganda of Francisco I. Madero would prevail? Well, I should say not. The results do not worry us, but, naturally, the fate of a member of our family, no matter how greatly he may have erred, is of the most vital interest, and there certainly will be trouble ahead for Francisco if he is caught on this side the line."

The leader in the recent uprising [see I R W, December 1, 1910, page 98], it will be remembered, was Francisco Madero, a nephew of the two brothers mentioned in this article.

NOTES.

A PLANT in Mexico known locally as *clavel de España* (Spanish carnation) which is mentioned in the *Bulletin* of the Pan American Union (Washington: January, 1911) is being studied as a possible source of rubber of value. It is stated to be abundant in the state of Sinaloa and in the mountains of Matatan. "The results so far obtained are satisfactory, and promise a success equal to that of the guayule plant."

Mr. Horace E. Levesley, manager of Hacienda "La Esperanza," in the State of Oaxaca, Mexico, the development of which estate has been in his charge from the commencement, 12 years ago, has been shipping rubber prepared from planted *Castilloa* by smoking it in a machine of his own invention, no coagulent of any kind being added to the latex. Specimens of this rubber sent to THE INDIA RUBBER WORLD, described as being 14 months old and since kept in the hot climate of Mexico, make a good showing in resiliency and strength.

Some Notes on Rubber Planting

NEU GUINEA CO.'S REPORT.

NEW GUINEA COMPAGNIE (Berlin) publishes the report of its executive committee and the business report of the directorate for the business year ending March 31, 1910, accompanied by the balance sheet for the period in question. The development of the enterprise during the year is reported as exceedingly satisfactory and the prospects for future progress favorable. The development of the plantations left nothing to be desired, and Director Dr. Preuss, who devoted five months to a thorough inspection of the properties, expressed himself as in every way satisfied with conditions and prospects. The rubber plantations in Iomba have been particularly successful; the total output amounted to 6,543 kilos, compared with 5,213 kilos the preceding year, 62 kilos being produced by *Hevea brasiliensis*, 3,056 by *Ficus elastica*, and 3,425 by *Castilloa elastica*. The area planted to *Hevea brasiliensis* was increased from 41 to 127 hectares, and the number of trees growing, alone and in conjunction with cacao, increased from 56,291 to 98,445. The balance sheet shows a total increase in valuation of 596,675 marks [= $142,008.65] and profits of 1,466,913 marks [= $349,125.29].

MEXICAN INDUSTRIAL PLANTERS' CO.

IN a brochure addressed to the holders of the Junta Plantation bonds, the general manager explains at length, his failure to obtain a purchaser for the property, which he attributes to a variety of reasons, mainly to the preference displayed for properties located in British possessions, where British laws prevail, and to the fact that, for the most part, they are based on the cultivation of the Hevea, which is superior in constancy and quality of yield to the rubber producing trees grown in other lands. He holds and hopes, based on anticipation of a substantial revival of public and speculative interest in rubber properties, that a sale may ultimately be made, even if at a lower figure than was expected last spring. In the meantime, he states that the company will go ahead with its affairs, just as though no sale was, or ever had been anticipated.

KAMUNING (PERAK) RUBBER AND TIN CO., LIMITED.

ACCORDING to a recent report, the area of the company's property was 5,919 acres, of which 1,550 acres were planted. In addition there were 600 acres cleared which would be planted before the end of the current year. Up to June 30, 1910, there had been collected 67,046 pounds of rubber, which sold for £25,170 ($122,489). The cost price, f. o. b., was about 1 shilling 6 pence, compared with a selling price of 7 shillings 6 pence. *Hevea* seeds were sold amounting in value to £338 ($1,644).

TANDJONG RUBBER CO., LIMITED.

At a meeting of the directors of The Tandjong Rubber Co., Limited, held in Ceylon House, London, in the latter part of January, it was decided to issue 16,000 shares of new stock. These shares are a part of the available unissued capital of the company. It was proposed to offer these shares to the stockholders of register on the books on January 25, in the proportion of one new share to every five shares held.

SUMATRA PROPRIETARY RUBBER PLANTATIONS, LIMITED.

ACCORDING to the report dated April 30, there had been purchased 4,000 acres, of which 1,000 acres had already been cleared and 475 acres planted with heveas to the number of 51,373. The cultivation of coffee has not been taken up.

MR. REIMERS IN RUBBER PLANTATIONS.

MR. HERMANN REIMERS, for some years an important member of the crude rubber trade in the United States, latterly as head of the New York firm of Reimers & Co., and for two years past a member of Heilbut, Symons & Co., of London, has become a director in several rubber plantation companies working in the Far East, and in the Anglo-French Mercantile and Finance Corporation, which latter has to do with the financing of rubber planting properties. At the late annual meeting of the Singapore Para Rubber Estates, Limited, in London, the chairman (Mr. Keith Fraser Arbuthnot), in discussing the satisfactory results of the past year, said: "What is in store for us during the current year it is difficult to say; but I am sure, with Mr. Reimers on the board, we shall have the best advice as to when to sell and when to hold."

CONSULAR REPORT ON GUTTA-JELUTONG.

THE United States consul general at Singapore mentions the United States Malaysian Rubber Co., Limited, as having turned out 325,000 pounds of their improved gutta-jelutong, though the period covered by the report is not specified. It is mentioned that as high as $1.25 per pound has been realized. The factory which the company are erecting on the Karimon Islands, a short distance south of Singapore, is intended to handle all the jelutong received from concessions outside of Sarawak, Borneo. The report states: "It is claimed that early in 1911, when the mills will be in full operation, they can produce 6,000,000 pounds of jelutong gum, 10,000,000 pounds in 1912, and 12,000,000 pounds in 1913." Evidently these figures relate to the quantities of crude gum intended to be dealt with.

The shipments of gutta-jelutong from the Straits Settlements during the past two years are stated to have been as follows:

	1908.	1909.
To United States.....*tons*	3,983	12,824
To United Kingdom.....	647	1,009
To Continent of Europe.....	1,427	5,093
Total	6,057	18,926

Hitherto the arrivals of this gum in the United States have been received mainly direct from Singapore, with a small percentage from England and still less from Holland. It would appear, therefore, that a considerable quantity is utilized in Europe, though some years ago practically all the world's production was utilized in the United States. It may be noted here that nowhere outside of America are statistics kept of imports of jelutong as distinguished from india-rubber and gutta-percha.

THE WHITE ANTS FALSELY ACCUSED.

SAYS *The Automobile* in a recent issue: "The fondness that the white ants of the Malaysia territory show for the roots of rubber trees as a steady diet has the effect of devastating whole plantations at a time, and efforts are on foot to devise plans for the extinction of the white pests."

Will somebody be good enough to advise us as to just which plantations have been "devastated"? Our own belief had been that it was only an occasional tree that was attacked, and so promptly were the planters informed by the department of agriculture of a single and effective means of destruction of the pest that very little harm resulted. The fact is, insects of the ant type are plentiful wherever *Hevea* rubber is cultivated, and the starchy tap root must be guarded against these attacks, but nowhere has the planting industry suffered severely from them.

CENTRIFUGAL PROCESS FOR "HEVEA."

THE success attained in the use of the "Empire" centrifugal rubber collector in dealing with the latex of *Castilloa* in Mexico has been mentioned already. [See I R W —May 1, 1910, page 280.] From time to time the manufacturers have received high endorsements from planters in Mexico, one of whom wrote

recently: "It is an excellent machine, superior to any on the market; in fact, it is quite unique. These machines will be used very largely, and we shall require a large number of them to handle all of our rubber. The centrifugal rubber now being shipped sells at from 1*s.* 6*d.* to 2*s.* more per pound than our other rubber."

The Empire Cream Separator Co. (Bloomfield, New Jersey) now report the return from Brazil of a representative sent out to test their machine on the latex of *Hevea*, which was done on the Diamantina plantation near Santarem, on the Amazon. The representative before his return visited London, where the product of the centrifugal process was well received, and the "Empire" collector is now offered for use on plantations of *Hevea*, or on *seringaes*. The process removes impurities and leaves a small percentage of the moisture.

The machine will be shown at the International Rubber Exhibition in London in June and July next, together with specimens of *Hevea* and *Castilloa* rubber coagulated with its use.

THE "FIXITE" LATEX CUP.

A NEW design in latex cups for use either on plantations or in gathering forest rubber is illustrated on this page. The firm responsible for it were the originators of glass latex cups, of which they are stated to have supplied several millions already to planters in the Far East. This cup is formed with a concave side, and thus can be fitted more closely to the tree than

THE "FIXITE" LATEX CUP.

a cup of any other design yet produced; it may be attached at any height, or embedded in the ground at the root of the tree. It is molded with two rims at the top, between which a string or wire can be passed round the cup and the tree, thus securely holding it in place. One advantage of the new design is that its use obviates the driving of nails into the tree, and the consequent damage to the bark. The new cup is called the "Fixite." The standard size is 12 ounces. [C. J. Dams & Co., Limited, 121 Newgate street, E. C., London.]

FILTER PRESS PROCESS FOR RUBBER.

AN excellent sample of *Castilloa* rubber sent to THE INDIA RUBBER WORLD by The West Coast Rubber Co., from their "Punian" plantation, in Guatemala, is described as having been prepared by a new process. The method used, it is explained, is an adaptation of the filter press process frequently used for extracting the moisture from raw sugar or starch.

The first step in this process consists in washing the latex by putting it in water, of four or five times its volume, after which the material is strained through two or three sizes of wire netting. The rubber has now become coagulated to the extent that it can be placed in the filter press without running.

Alternate layers of the rubber thus prepared and of sand are put into the press, with sheets of wire netting and thin cotton cloth between the layers. After placing eight or ten layers of rubber in this way pressure is applied, and in the course of an hour or two the sheets are taken out in readiness for shipment. The sand can be dried and used over again. The specimen referred to in this article is clean and dry, about ⅛ inch in thickness, and has the appearance of crepe rubber, though bearing the marks of the wire netting.

The "Punian" estate is exporting forest rubber, while establishing plantations of *Castilloa*. The location is in the district of Escuintla, not far from San José, Guatemala. The West Coast Rubber Co. was incorporated in New York, in 1907. A view of their factory interior appeared in THE INDIA RUBBER WORLD July 1, 1908 (page 324).

FIREPROOF STORAGE FOR COTTON.

CONCRETE construction is regarded as most desirable for buildings designed for the storage of large quantities of material of an inflammable character, and a notable building of this description has recently been completed for the Massachusetts Cotton Mills, at Lowell, Massachusetts.

This building stands twelve stories high, and occupies a site 100x256 feet in the heart of the city, amid surroundings that made the storage of building material in any quantity impossible, and compelled the contractors to plan its delivery as required, in order to prevent at once, accumulation or delays.

The plans were prepared by the company's engineers, Lockwood, Greene & Co., Boston, and the Aberthew Construction Co. of that city were the general contractors. The interior plan provided for mushroom columns and floors of re-inforced concrete slabs, thus doing away entirely with girders and saving much overhead space, the distance between floors being only eight feet. The columns, of latticed steel, encased in concrete, take up comparatively little room, and the outer walls are for the three lower stories, solid reinforced concrete, and above this, concrete panelled with brick. The grooving of the concrete on the lower floors, with the contrasting brick and concrete above, surmounted by a heavy moulded concrete cornice, give the building an attractiveness of appearance that detracts neither from its massive solidity nor from its practical adaptation for the purposes for which it is intended.

The fireproof quality of the structure is enhanced by the division of each floor into four separate compartments by reinforced concrete fire-walls extending the width of the building. All the windows, which are set in pairs between the concrete panels, are of sheet metal, with wired glass lights, the whole of extra heavy and fire resistant construction.

For convenience in handling the cotton, two elevators are provided in the rear, each so located alongside one of the end fire walls as to serve two compartments, the openings into which are protected by automatic fire doors, as are also the openings from one compartment into another. Each of the four sections is also provided with a series of hatchways to facilitate the lowering of material from floor to floor, all these hatchways have automatically closing fireproof doors, so that, in the event of an outbreak of fire, it would be confined to one section. The elevators are served by a concrete platform extending along the rear of the building. The only connection with any adjacent edifice is by means of a bridge of structural steel, covered with corrugated iron, which extends to another of the mill buildings across an intervening street.

To provide sufficient head room in the apartment known as the breaking and opening room on the ground floor at one end, the second story floor has been omitted, so that there are in all 47 compartments in the building, each separate and of such fire and waterproof construction that an outbreak of fire in the cotton stored in any one of them would not endanger the contents of any other.

The speed with which the building was erected is also a feature in connection with it. The piling was completed in July, 1910, and on January 1, 1911, the structure was ready to be turned over to the owners.

Some Rubber Interests in Europe.

ACCORDING to an official report on the industrial statistics of Finland for the year 1908, published recently, there is one rubber goods factory in that country, which is a grand duchy of Russia, in the northwestern part of the empire. It is that of the Suomen [Suomi is the Finnish name of the country] Gummi-Tehdas Osakeyhtio, in the town of Nokialla, near Tammerfors, with headquarters in Helsingfors, the principal seaport in the frand duchy. Helsingfors is located across the Gulf of Finland from St. Petersburg.

The number of work people employed during 1908 was 88, including 34 women and 12 boys and girls under eighteen years. The production embraced 137,000 pairs of rubber shoes and 42,000 kilograms of mechanical rubber goods. The materials used included 40,000 kilograms [= 88,000 pounds] of crude rubber, valued at 350,000 Finnish marks; 1,000 kilograms of domestic fabric, worth 52,000 marks; and 64,000 kilograms of foreign raw material, worth 19,000 marks. The factory employed 9 electric motors, with a total of 200 H. P.

Five rubber stamp factories in Finland (the two largest in Helsingfors) employed 17 workers, and had a total output valued at 60,200 marks. A new rubber stamp factory was established during the year at Wiborg, by the firm H. W. Huhtamo.

AUSTRIA-HUNGARY.

THE directors of Ungarisch Gummiwaren-Fabriks A.-G., of Budapest, has been empowered, by a special meeting of the shareholders, to increase the capital from 2,500,000 kroner [=$507,500] to 3,500,000 kroner [=$710,000]. The new issue embraces 5,000 shares of 200 kroner; the present shareholders have the option of subscribing for 2,500 shares, at the rate of 420 kroner, and entitled to rank for dividends from January 1, 1911.

The firm Oesterreichisch-Ungarische Michelin-Pneumatic G. m. b. H. has been registered in Vienna with a capital of 400,000 kronen [= $81,200], to deal in "Michelin" tires, rims, and accessories. Leon Limborg is business manager.

CLOSING OF A FACTORY IN AUSTRIA.

THE plant of the Steinklammhofer Gummi-Werke G. m. b. H., at Steinklamm, near Vienna, after having been idle for some time, has been purchased by the Oesterrisch-Amerikanische Gummi-Fabrik Aktiengesellschaft. This company will utilize the machinery and tools in their various existing factories, and close the Steinklamm plant. The land and buildings are not included in the purchase. The business thus closed was registered, some two years ago, by G. W. Laughton & Co., Limited, of Manchester, England, manufacturers of mechanical rubbers and reclaimed rubbers, with a capital of 200,500 kronen. [See I R W February 1, 1909, page 171.]

GERMANY.

THE shareholders of Gummi-Werke "Elbe," Aktiengesellschaft, at Wittenberg near Piesteritz, at a special meeting on December 15, voted to increase the capital from 500,000 to 750,000 marks.

The capital of the Berliner Gummimantel-Fabrik G. m. b. H. is being increased from 30,000 marks to 100,000 marks [=$23,841].

TWENTY-FIVE YEARS' BUSINESS JUBILEE.

ON January 12 Alfred Calmon, Hamburg, general director of the Asbest und Gummiwerke Alfred Calmon Aktiengesellschaft, of that city, celebrated the establishment, by him, on January 12, 1886, of that business. The firm was first engaged in the manufacture of asbestos packings and in trading in technical supplies, especially manufactures of rubber and asbestos. In 1890 the manufacture of packings was transferred to Hanover, where the asbestos factory of Otto Köhsel & Son had been acquired, and on December 23, 1893, the concern was incorporated as a joint stock company, with a capital of 540,000 marks. In 1896 the business was organized under the present title, with a capital of 1,500,000 marks, which has since been increased, as the growth of the business required, to the present 6,000,000 marks [=$1,428,000].

SWEDEN.

FORTY tons of Russian rubber footwear arrived by steamer on November 12 at Stockholm, where duties amounting to upwards of 50,000 crowns [=$13,400] were imposed. The shipment was made by the Russian-American India Rubber Co., Treügolnik, of St. Petersburg, to their own warehouse at Stockholm, opened since their former agents there went into liquidation recently. The business at Stockholm is conducted under the style Aktiebolaget Russian-American India-Rubber Co. "Treügolnik"—a corporation with a capital of 50,000 crowns. The Stockholm directors are Carl Emil Stenstrom and T. B. Blomgvist.

GREAT BRITAIN.

AT the annual meeting of the Liverpool Electrical Cable Co., Limited, on December 22, a final dividend of 15 per cent. was voted, making, with the 5 per cent. interim dividend paid in June, a total of 20 per cent. for the year.

There was to be a hearing in London on January 14 of a petition for confirming the reduction of the capital of the New Gutta-Percha Co., Limited, from £200,000 to £125,000. This company was organized in 1902, to manufacture a material known as Gentsch's artificial gutta-percha.

Mersey Reclaiming Co., Limited, registered November 28, 1910, with £25,000 [=$121,662.50] capital—of which one-half is in preferred shares—to take over the rubber reclaiming business carried on at Daw Banks Works, Stockport, by the Palatine Trust, Limited.

Marshall Tyre Jacket Syndicate, Limited, registered December 13, 1910, with £100,000 [=486,650] capital, to manufacture tire jackets, tires, and tire fabrics, and to adopt an agreement with the Marshall Tyre Fabric Co., Limited. Four of the seven directors are nominated by the latter company, including C. L. Marshall, who is managing director of the new company.

Dorn, Harding & Co., rubber brokers and merchants, 65 Fenchurch street, London, announce the admission as a partner in the firm of Charles Maxwell Kinnear, as from January 1, 1911.

The sole *concessionaire* for Ireland for Goodrich tires is J. Pullar Phibbs, Molesworth street, Dublin.

NORTH BRITISH AEROPLANE FABRICS.

THE North British Rubber Co., Limited (Edinburgh), have received a letter from Mr. C. Grahame-White informing them how highly satisfactory he found the aeroplane material made by them, which he used in the majority of his recent duration flights in the United States. He writes: "I was highly satisfied with the lightness and weather resisting qualities of the material, and hope to make mutually satisfactory arrangements with you for the supply of a large quantity for the aeroplanes which I am now designing, and which will shortly be put into construction."

A LARGE VULCANIZING PRESS.

AN order has been booked by David Bridge & Co., Limited, rubber engineers of Castleton, Manchester, for a special hydraulic vulcanizing press, 14 feet long x 54 inches wide, to have 12 rams—*i. e.*, six pairs—and to work at high pressure. The press will have three platens—two daylights complete, with hydraulic charging and discharging appliances. This press is for the use of The Premier Reforming Co., Limited, of Walthamstow, in the manufacture of sheeting and other mechanical goods by their special process. The Messrs. Bridge have also installed three special heavy grinders electrically driven, for grinding up old rubbers, besides other special machinery.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED JANUARY 3, 1911.

NO. 980,226. Resilient wheel. H. R. Ellis, Salt Lake City, Utah.
980,355. Hose connection. I. H. Spencer, assignor to The Spencer Turbine Cleaner Co.—both of Hartford, Conn.
980,530. Rubber dam clamp. J. W. Ivory, Philadelphia, Pa.
980,671. Pipe coupling packing. W. W. Price, Dayton, Ohio.
980,677. Hose coupler. S. M. Rhoads, Philadelphia, Pa.
980,895. Hose holder. J. Doherty, San Diego, Cal.

Trade Marks.

49,941. Eureka Fire Hose Manufacturing Co., Jersey City, N. J. The representation of a fabric hose. For woven linen fabric hose.
51,911. Elwell Rubber Manufacturing Co., Boston. The words *Panther Tread.* For rubber heels.
52,949. Charles A. Daniel, Philadelphia, Pa. The word *Ironsides.* For rubber belting.

ISSUED JANUARY 10, 1911.

980,930. Armor for tires. R. G. Dunwody, Atlanta, Ga.
980,954. Hose holder. H. J. M. Howard, Washington, D. C.
981,047. Storage tire protector. B. S. Wescott, Elmira, N. Y.
981,082. Nursing nipple. W. M. Decker, Buffalo, N. Y.
981,106. Rubber sole shoe. H. O'Sullivan, Lowell, Mass.
981,181. Demountable rim for wheels. J. W. Farnoff, assignor of one-half to W. J. Reiman—both of Buffalo, N. Y.
981,182. Tire fastener. *Same.*
981,208. Pneumatic tire. J. MacDonnell, Haverhill, Mass.
981,213. Cushion tire. J. A. Mollitor, Chicago, Ill.
981,265. Demountable rim for vehicle wheel tires. J. G. Hodgson and J. G. Hodgson, Jr., Maywood, Ill.
981,266. Demountable vehicle rim for resilient tires. *Same.*
981,524. Rubber fabric. W. T. Bonner, assignor to Empire Rubber Manufacturing Co.—both of Trenton, N. J.
981,526. Automobile horn. G. Braf, A. Girardi, G. Occhinto, and S. Occhinto, New York.
981,588. Shampoo shield. D. Nelson, Seattle, Wash.
981,594. Demountable resilient tire seating rim for motor car or other vehicle wheels. J. G. Hodgson and J. G. Hodgson, Jr., Maywood, Ill.

Trade Mark.

46,282. L. J. Mutty Co., Boston. The representation of two bull dogs pulling at fabric on which is marked the words *Bull Dog Brand.* For waterproofed textile fabrics.

ISSUED JANUARY 17, 1911.

981,640. Tire protector. R. M. Halliday, assignor of one-half to G. C. Halliday—both of Mount Gilead, Ohio.
981,705. Hose connection. I. H. Spencer, assignor to The Spencer Turbine Cleaner Co.—both of Hartford, Conn.
981,740. Demountable rim. A. R. Behnke, St. Paul, Minn.
981,792. Means for securing pneumatic and other tires to the rims of wheels. E. Owen, Llandudno, England.
981,866. Hose coupling. S. R. Lockhart, assignor of one-half to S. E. Milsted—both of Buna, Texas.
981,981. Machine for forming automobile tire treads. W. H. Crook, Ansonia, Conn., assignor to the Birmingham Iron Foundry, Derby, Conn.
982,045. Electric vulcanizer. W. C. Fish and A. M. Stanley, Lynn, Mass., assignors to General Electric Co.
982,143. Vehicle wheel. G. B. Lambert, New York.

Trade Marks.

51,464. Thomas G. Plant Co., Boston. The words *Boston Leader.* For rubber boots and shoes.
51,561. The Brown Shoe Co., St. Louis, Mo. The word *Mansion.* For rubber shoes.
52,903. St. Mungo Manufacturing Co., Glasgow, Scotland. The word *"Captain."* For golf balls.
52,904. St. Mungo Manufacturing Co., Glasgow, Scotland. The word *"Cadet."* For golf balls.

ISSUED JANUARY 24, 1911.

982,278. Rubber plate for shoes. J. P. Kline, Brooklyn, Mich.
982,373. Process of separating rubber like gum from its vegetable source. W. A. Lawrence, assignor to Intercontinental Rubber Co.—all of New York.
982,465. Tire sleeve. A. E. Berg, Oakland, Cal.
982,573. Device for securing tires to wheel rims. A. L. Cadé, Paris, France.

Trade Mark.

46,326. New York Belting and Packing Co., Limited, New York. The word *Test.* For belting composed of rubber and fabric.

ISSUED JANUARY 31, 1911.

982,968. Cushion tire. L. Knapp, Denver, Colo., assignor of one-half to the Fawkes International Rubber Co., a corporation of South Dakota, and one-half to the Dayton Rubber Manufacturing Co., Dayton, Ohio.
983,177. Vehicle wheel. W. J. Straight, Chicago, Ill.
983,231. Tire casing. H. R. Holbrook, Attleboro, Mass.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1909.

**Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 11, 1911.]

21,482 (1909). Segmental elastic tire. A. G. and G. P. Merchant, London.
21,503 (1909). Woven driving belts impregnated with balata or gutta-percha. **T. Taylor and J. Taylor & Co., Waterfoot, near Manchester.**
21,537 (1909). Golf balls. W. M. Short, Beckenham, Kent.
21,611 (1909). Rim for pneumatic tires. W. H. Fry, London.
21,692 (1909). Pneumatic protector for shoes. T. Herbert, Glasgow.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 18, 1911.]

*22,127 (1909). Pressure gage for tires. C. R. Twitchell, Los Angeles, California.
22,217 (1909). Mold for tires. C. M. Gautier, London.
22,222 (1909). Regenerating rubber. W. van Oosterzee, Nord, France.
22,272 (1909). Apparatus for automatically inflating tires. R. Barnfather, Croydon, Surrey.
22,307 (1909). Protective band for pneumatic tires. B. B. Hill, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 25, 1911.]

22,376 (1909). Colotomy appliances. C. A. Hoefftcke and C. A. Hoefftcke, Limited, London.
22,543 (1909). Tire repairing device. C. Ogden, Salford, Lancs.
22,557 (1909). Flower holder for automobiles with rubber collar. A. Tebbitt, Paris, France.
22,606 (1909). India-rubber solvent. V. Scholz, Hamburg, Germany.
22,607 (1909). India-rubber solvent. V. Scholz, Hamburg, Germany.
22,807 (1909). Pneumatic tire. W. G. Y. Jones, London.
22,810 (1909). Protective non skid cover for rubber tires. J. C. Hudson, London.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

417,544 (June 23, 1910). R. A. Moore. Anti skidding arrangement for automobiles.
417,635 (June 29). E. Spiegel. Process and apparatus for the manufacture of leather tires for wheels.
417,752 (June 6). J. Cairns. Tires for vehicle wheels.
417,756 (June 4). A. Millet. Application of a rubber sole in the manufacture of leather footwear.
417,768 (June 11). Société Badische Anilin & Soda Fabrik. Process for the production of substances having the properties of caoutchouc.
417,811 (July 2). F. Foelsch. Process of making leather, etc., impermeable, especially for footwear.
417,866 (July 5). A. Vandervoert. Elastic tire for vehicles.
417,887 (September 13, 1909). C. Putois. Improvements in tires for vehicle wheels.
417,888 (September 13). A. A. Duhardel. Elastic tire for the wheels of vehicles, mechanical and other.
417,905 (July 6, 1910). M. C. Overman. Improvements in vehicle wheels and in elastic tires for them.
417,982 (June 20). E. Depreux. Arrangement for stretching, in the course of manufacture, belts of cotton and caoutchouc, known as balata.
417,939 (May 20). J. C. Barker. Improvements in pneumatic tires.
418,000 (July 1). A. Van der Stichelen. Elastic tire for the wheels of vehicles.
418,001 (July 5). A. J. Michelin. Demountable multiple wheel for pneumatic tires, for automobiles and other vehicles.
418,087 (July 9). F. H. de Lostalot. Elastic tire for all vehicles.
418,090. (July 9). J. Markus. Improvement in the manufacture of boot heels from manufactured rubber wastes.
418,351 (September 25, 1909). L. A. Emery. Anti skidding protector, for pneumatic tires in general.
418,384 (July 19, 1910). E. Vedovelli. Protector for pneumatic tires.
418,417 (July 21). L. Eschenbach. Rubber soled footwear.
418,556 (July 25). F. Allasise. Counter-envelope for pneumatic tires.
418,652 (July 27). A. J. Wilson. Tire for vehicle wheels.
418,544 (July 23). Société Farben fabriken, formerly Fried Bayer & Co. Process for the production of a substance resembling caoutchouc and of the articles made from it.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Robet, Ingenieur-Conseil, 16 avenue de Villier, Paris, at 50 cents each, postpaid.]

THE MILL ROOM

Here the rubber is rolled or milled to give it proper consistency. This is the next step after the cleaning and drying of the crude. In other words this picture shows the manufacture of rubber. Further on, the rubber is patterned into articles of sale, and cured.

This department, representative of the equipment of the plant of the B. F. Goodrich Company, is the largest and most completely equipped Mill Room in the world.

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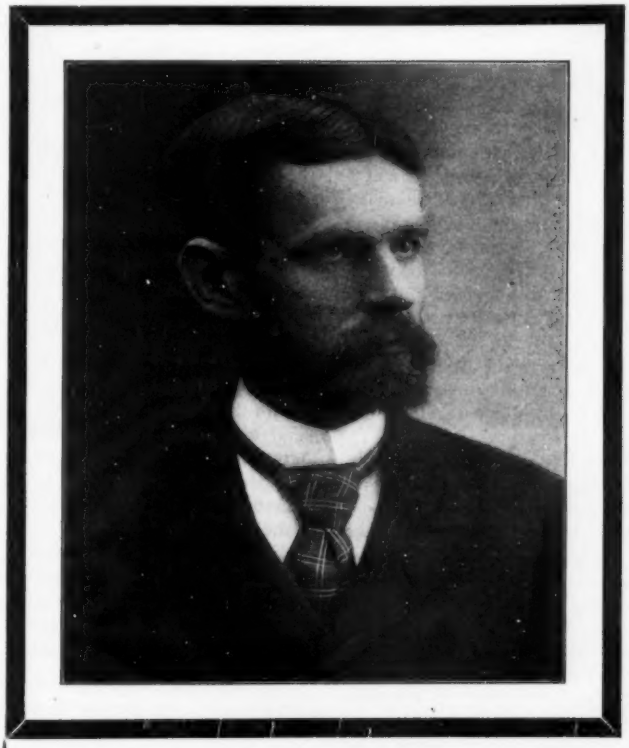
THE MECHANICAL RUBBER CO., CLEVELAND, OHIO

The Late Hawthorne Hill

MR. HAWTHORNE HILL, associate editor of THE INDIA RUBBER WORLD, died after a brief illness at his home in Brooklyn on the morning of February 2. A short reference to this sad event was included in our February issue which was just going to press. Mr. Hill's death came suddenly, from an attack of pneumonia which in his somewhat weakened physical condition he was unable to withstand. He only left his office desk one week before his death, and was considered to be seriously ill for only 48 hours.

Mr. Hill was born April 13, 1857, on a farm in Crittenden County, Kentucky, near Marion, the county seat. He did not enter school until about the age of twelve, but having been well grounded at home previous to this time he had before this age become an omnivorous reader of books and newspapers and had contributed articles to the local papers. As a boy he subscribed to many papers and magazines and made an effort to secure, for inspection, a copy of every periodical of which he heard. Much of his time as a youth was spent in reading and writing and this with his remarkably retentive memory and close insight into details equipped him even before he reached his majority with a wonderfully varied and accurate fund of information. To this a continuance of the same painstaking and studious habits added year by year until in his days of maturity he became a veritible encyclopedia of varied and servicable information.



The Late Hawthorne Hill.
[From a photograph taken fifteen years ago.]

Mr. Hill's first employment away from home was as a teacher in the public schools of his native county. After one term as a teacher he moved—being then about 21 years old—to Marysville, Kentucky, where he had secured employment upon the local paper. While serving in this capacity he acted as correspondent to various daily newspapers in Cincinnati, Ohio, Louisville, Kentucky, and other cities. His work soon attracted the attention of the metropolitan editors and in the spring of 1879 Mr. Henry Watterson, editor of the *Louisville Courier-Journal*, offered him the position of "Kentucky State News Editor." In this position Mr. Hill soon became one of the best known newspaper men in Kentucky.

After serving several years on the *Courier-Journal* he resigned his position to become city editor of the *Louisville Commercial*. He was soon advanced to managing editor of that paper and served in that capacity until he decided in 1887 to try his fortunes in New York. His first connection in the metropolis was with the New York *World*, where he served in various capacities until 1889, when, on account of an unsatisfactory condition of health, he decided to give up the strenuous daily work and cast in his lot with trade journalism. He became associated with THE INDIA RUBBER WORLD at its inception. Mr. Hill remained with these same interests when later on they founded *Hardware* and also when *The Engineering Magazine* was established. When *Hardware* was sold Mr. Hill severed his connection with this firm to become editor of that paper. After acting in this capacity for about a year Mr. Hill again joined the editorial staff of THE INDIA RUBBER WORLD and with the exception of a period of about fourteen months in 1894-5, when a protracted period of illness compelled him to give up editorial work, he has been continuously identified with this paper. When the paper was purchased by Mr. Henry C. Pearson, in the spring of 1900, Mr. Hill became identified with it as associate editor, the positon he occupied until his death.

In October, 1886, Mr. Hill married Miss Lillian Sawyier, of Frankfort, Kentucky, who survives him. He also leaves twin boys nineteen years old and a daughter of twelve. The interment was in Greenwood Cemetery.

More than twenty years of intimate association with Mr. Hill only served to intensify the impression of his unusual force and capacity. Possessed of a marvelous memory, coupled with a love of learning for learning's sake, his store of knowledge was encyclopædic. His long training in every department of daily newspaper work, together with a natural genius for it, gave to his writings not only an orderly, logical arrangement, but rare dignity and polish. Possessed of a passion for exactitude, no labor was too great if it resulted in the verification or illumination of facts.

For breadth of view, sense of proportion and instant appreciation of news values, he ranked with the great editors of the day. Only a singular distaste for the trammels and disciplines incident to great publications kept him from a career in which his talents would have been broadly recognized.

As a conversationalist he held one's attention by his inexhaustible fund of information and wealth of illustration. Always courteous, generous to a fault, intensely patriotic, not in a local but a truly American sense, he held the esteem of all, while those who were able to penetrate the almost bashful reserve with which he enshrouded his inner self, found a soul of rare sweetness and strength.

What THE INDIA RUBBER WORLD owes to his intelligence and constant service, especially during its formative period, can hardly be expressed. How much he will be missed by his associates no words can depict.

FOREIGN MARKETS FOR RUBBER TIRES.

IN a recent issue of the *Daily Consular and Trade Reports* the subject "Markets for Rubber Tires" is discussed in reports of United States consuls from all parts of the world. The salient facts embodied in some of these reports, we reproduce, as likely to prove instructive to those of our readers who may be interested in the establishment of an export trade in their goods.

The consul-general at Moscow says, "The Russian market for solid tires is undoubtedly the largest in the world, though yet in its infancy. The demand for pneumatic tires is growing with the large increase in the automobile and bicycle trade." The report gives statistics as to the imports of automobiles and parts via European and Asiatic frontiers, particulars as to the leading rubber manufacturing companies in Russian and their output, the means adopted by other countries to secure a share of the trade and sources of tire supply, tells why Americans do not share in the trade, and how they may obtain part of it.

From Germany, the consul-general at Hamburg reports as to the duty on tires, the steps taken by manufacturers of other countries to secure a share in the trade, and offers suggestions as to how the market could be entered. The consul-general at Frankfort-on-Main quotes prices at which tires of German and French make are sold there, which he says, a foreign firm, introducing tires, would have to meet and depend on the superiority of their goods to win them a trade.

"An excellent field in this consular district for the sale of rubber goods," is reported by the consul at Carlsbad, Austria, who instances complaints as to the quality of the tires purchasable there, as affording a good basis for the introduction, at a reasonable figure, of good American tires. He gives some points as to the best plan for reaching the market in Austria-Hungary.

The consul-general at Marseilles, France, reports remarkable success in the sale of an American pneumatic tire in that market. American makes of solid tires also take the lead there, although they are being steadily displaced by the pneumatic. To get trade it would be necessary, in his opinion, to open a depot in Paris.

From Johannesburg, South Africa, the consul reports that "in point of population that city offers one of the best markets in the world for rubber tires, not only for automobiles, but for motorcycles and bicycles." He gives the number of motor cars licensed in the municipality, in the first months of 1910, at 700, not including the outlying towns and district of the "Reef," where the number of cars would raise the total to considerably over 1,000. He reports the tires sold mostly of European make, but a few of the garages stock American tires and occasional orders for them are given by general dealers. The monthly turnover in automobile tires in the district is placed by him at $30,000 to $35,000. In addition, there are 471 licensed motorcycles and 22,000 bicycles in use in Johannesburg alone, but being mostly of English make they are equipped with English tires. There is also a good demand for rubber tires for carriages. The American share of the business is at present insignificant, but could, in the consul's opinion, be increased by the establishment of a central depot, for the supply of the trade.

The consul-general at Santo Domingo, reports bicycles quite extensively used in the Dominican Republic, and many of the livery carriages, of a light surrey type—most of them imported from the United States—which in the absence of street cars are used for passenger conveyances, as having rubber tires. Although rubber tires do not wear well and soon need repairs, the facilities for doing this work are reported as poor.

From the above, it is easy to gather that there are plenty of opportunities in foreign markets, for the introduction of American rubber tires, if the manufacturers of the United States would expend, on their possibilities, a little of the energy they put forth to secure, against strenuous competition, a less important and much less profitable amount of business at home.

The following table of sales of automobiles and parts, made by United States manufacturers, to customers in foreign countries, for the past three years, compiled by the Department of Commerce and Labor, is calculated to interest rubber tire manufacturers. It shows, in the first place, the magnitude of the export business done in these goods, in the second its remarkable growth and it also indicates the countries in which there is likely to be a field for the introduction of meritorious products of this character:

Countries.	1908.	1909.	1910.
United Kingdom	$1,728,704	$2,059,210	$2,755,592
France	560,449	846,136	753,204
Germany	158,979	181,087	331,754
Italy	248,519	224,068	377,750
Other Europe	217,172	335,675	764,463
Canada	1,115,540	2,437,042	5,021,043
Mexico	312,603	494,238	689,903
West Indies	198,078	337,414	412,588
South America	126,285	240,453	519,160
British Oceania	87,543	303,452	748,933
Other Asia and Oceanic	129,968	191,448	599,756
Other countries	64,754	136,394	216,150
Total	$4,948,594	$7,786,617	$13,190,296

A NOTE OF WISDOM HAS BEEN STRUCK IN BUTTE, MONTANA. They have a city ordinance there—differing from most city ordinances, in that the police assume to enforce it—which requires the placing of rubber matting over coal-hole covers and other pieces of smooth iron in the sidewark during the season of snow and slipperiness. A highly sensible and humane provision; for if there is any device calculated to effect a violent encounter between the sidewalk and the back of a man's head it is the polished coal-hole cover when disguised by a half inch of snow. Other cities in the snow belt might very properly follow the Butte lead, extending the law to cover sidewalks with glass settings, devised especially in the interest of the bone experts. Rubber matting on the slippery places of life would save many a man from coming down and help the matting market to move steadily up.

THE AGRICULTURAL DEPARTMENT of Java estimates the total area planted to caoutchouc on that island at about 36,770 hectares. Of this, 25,550 hectares are planted to *Hevea brasiliensis*, 6,430 to *Ficus elastica*, and 17,050 hectares to *Manihot glaziovii, Castilloa elastica*, etc.

WATERPROOF CLOTHING FOR THE FRENCH ARMY.

FOR some time past, the French military authorities have had in view the furnishing of rubber mantles to the officers. On the occasion of the last manœuvers in Picardy, experiments have again been made, with a new pattern, which, although no official notice of its acceptance has been made, is said to have proved very satisfactory. The new pattern suggested, is a very short mantle, fitting closely over the field uniform of the officers and made of a black, rubberized fabric. The closure in front is almost invisible, and is based on a press-button method, the collar rises high and is half stiff. This new pattern, which, as already stated, has a prospect of acceptance, is at once more elegant and cheaper than those hitherto suggested. German manufacturers of rubberized clothing fabrics, says the *Gummi-Zeitung*, may possibly find great interest in regard to the possibility of this general supply of officers' mantles and give it their full attention. Undoubtedly they would be in a position, in connection with this supply, to enter into profitable competition.

New Rubber Goods in the Market.

APCO PEDAL GRIP.

THE metal surfaces of the pedals, by means of which the movements of an automobile are controlled, are very likely, especially when they begin to wear, to develop a smoothness or slipperiness that makes the hold of the foot upon them insecure and is a familiar element of uncertainty and danger in automobile operation. The attempts made to obviate this trouble, by wrapping the metal pedal in rubber, rags, etc., or "serving" it with cord, afford the best evidence of its existence and recognition by drivers. Not only this, but the constant pressure on the unyielding metal surface and the tiresome efforts

APCO PEDAL GRIP.

to keep the foot in place, are not conducive to the motorist's comfort on long trips, especially on thoroughfares where constant control of the car is essential to safety. Apco Pedal Grips are offered as a means of avoiding these objectionable features. They are made of corrugated rubber, reinforced with a sturdy steel plate and provided with bolts by means of which they can be immediately and firmly secured in place. On these pedal grips the feet cannot slip, moreover, they take up jar and vibration to an extent that materially relieves the strain on the foot. Attractive in appearance, they look well on any car and are an inexpensive addition to its equipment. [American Pedal Co., No. 1733 Broadway, New York.]

NEW FEATURE ELECTRIC HOSE.

WITH a view of furnishing a customer with indisputable proof of the fact that when purchasing cut lengths of hose he is receiving what he paid for, enabling the salesman to cut any desired length without going to the trouble of measuring it off and at the same time furnishing the dealer with a ready means of ascertaining the quantity of any particular size of hose he may

NEW FEATURE ELECTRIC HOSE.

have in stock, without having to measure it, the manufacturers of "Electric" and "Velvet" brands of seamless, circular, braided electric rubber hose, have adopted the plan of marking each foot of its length in the course of manufacture. The hose is made up in lengths of 500 feet or more, according to the nature of the demand and the buyer is thus enabled to obtain reasonable lengths in one piece, without joint or coupling. [Electric Hose and Rubber Company, Wilmington, Delaware.]

A "KLINGTITE" THAT CLINGS.

THE cut shown herewith illustrates the new Alice Lloyd Klingtite rubber, which is made both in the women's croquet and in the storm last. The essential feature of the Klingtite is similar to the essential feature of the Everstick shoe, viz., a cord running around the upper edge of the rubber, which, of course, greatly decreases the elasticity around the heel and

THE "KLINGTITE" RUBBER.

makes the rubber cling more tightly to the leather shoe, a feature which is useful where the clerk has not been particularly careful to see that the rubber is a good fit for the leather shoe. There is one difference between the Klingtite rubber and the Everstick in the fact that in the Klingtite the cord does not go entirely around the top of the rubber. Open space is left at the front in order to allow enough elasticity to make it possible to get the rubber on and off easily. [American Rubber Co., Boston.]

THE NEW FIRESTONE QUICK REMOVABLE SIDE WIRE TIRES.

A NEW TIRE and rim equipment that promises to revolutionize the present methods of changing truck tires, is being publicly offered for the first time by The Firestone Tire and Rubber Co., makers of the standard side wire tire. This equipment does away with layups for tire repairs or replacements, by enabling the driver to change tires anywhere in a few minutes, with no other tool than a wrench.

It keeps deliveries going on with but slight interruption and cuts off the dead expense of having the vehicle out of commission on account of tires.

SINGLE QUICK REMOVABLE TRUCK TIRE.

The accompanying illustrations show a single tire mounted on the wheel, and a sectional view of the rear wheel equipped

DUAL QUICK REMOVABLE TRUCK TIRE.

with dual tires, one of which has been removed. In order to change tires, the driver removes the nuts (6), of which there are fourteen around the wheel. This releases the clamping flange (5). He then slides off the tire, rim and all in one

lateral movement. The clamping ring (4) is split and comes off along with the tire. A spare tire already applied to the rim is substituted by merely reversing the operation. One or two spare rims with tires already applied are kept at headquarters ready for use. Rims of equivalent size are interchangeable on all wheels, front and rear, single or dual. There is no risk of the tire not being firmly and properly applied in its rim, for the tire itself is applied by experts at any of the hundred-odd Firestone applying stations. The driver only changes the rim and does not tamper with the tire itself. This equipment enables the removal of any tires at will, to be rebuilt or repaired before they are too far gone. Such repairs to Firestone Side-Wire Tires frequently double their length of service. This equipment has been thoroughly tested and its efficiency proved in actual service before offering it to the public. One of the largest truck manufacturers has already adopted it as regular equipment. [Firestone Tire and Rubber Co., Akron.]

REPUBLIC SOLID CLINCHER TIRE.

THE Republic Rubber Co. is manufacturing a truck tire which possesses many of the most essential features conducive to economical truck tire service. It is known as the clincher flange type, and is made under patent issued to B. C. Swinehart, who has charge of their motor truck department. Cross wires are used to stiffen the base and to keep it from

REPUBLIC SOLID CLINCHER TIRES.

pulling out from under the inturned clincher flanges. The flanges offset so as to protect the bolts from coming into contact with curbs, car rails, etc., and the clincher part of flange entirely protects the base of tire. The growing demand for quick detachable truck tires has rapidly pushed this tire to the front, until now it is one of the most popular on the market, as it can be replaced by a new one in less than one half-hour without the aid of any special tool or machinery. [Republic Rubber Co., Youngstown, Ohio.]

"SAXE" ALL ELASTIC WRISTLET.

THE comfort many people engaged in fatiguing occupations, such as typewriting and various mechanical pursuits, athletic sports, and the like, derive from a wristlet, and their indispensability in cases of weak or sprained wrists, has created a steady demand for appliances of this description. For the "Saxe" all-elastic wristlet, special advantages are claimed.

THE "SAXE" WRISTLET.

Made of rubber of the best quality, fully protected to avoid direct contact with the skin, it not only adapts itself, with unvarying uniformity to the conformation of the wrist, and follows all its movements, but constantly affords live and active support, without requiring to be fastened so tightly as to be uncomfortable. It is made in various sizes, is easily applied and of neat appearance. [Chesterman & Streeter, Inc., Philadelphia, Pennsylvania.]

THE TRIPLEX COMBINATION BAG AND IRRIGATOR.

A HOT water bag and an irrigator must be considered as indispensable articles in the hygienic outfit of every household and their value is enhanced where they are conveniently combined, as in the Triplex combination water or ice bag and irrigator, illustrated herewith. Owing to the material used in its manu-

TRIPLEX COMBINATION BAG AND IRRIGATOR.

facture, it can be effectively sterilized, will withstand extremes of temperature and such oils or chemicals as are frequently prescribed for douching can be used in it without risk of injury. Its form enables it to be easily filled and as easily cleansed, and its manufacturers claim for it great durability and equal convenience for use as an ice cap or bag or hot water bottle. Its comfort is enhanced in either instance by the use with it of a conveniently removable flannel cover. [The Triplex Specialty Co., New York.]

A NOVEL AUTO SHIRT.

A NOVELTY among chauffeur's rubber auto shirts is found in one which fastens at the neck with double snaps, having a ribbon run through the collar to tie it closely. It is an extra full

NOVEL AUTO SHIRT.

garment, but not awkwardly so. Rubber hoods to match the same can be had, having a full cape to the hood. The whole outfit, which, as the accompanying illustration shows, is quite presentable in appearance, comes in colors of black, red and olive, and in a full assortment of sizes. [John Wanamaker, New York.]

The Editor's Book Table.

DER KAUTSCHUK, UND SEINE PRUEFUNG, BY DR. F. W. HINrischen and Dipl. Ing. K. Memmler - - - Leipzig: S. Hirzel. 1910. [Paper. 8vo. Pp. 263. Price, 8 marks.]

THIS book, for its size, is one of the most comprehensive and complete works published in recent years on the subject of rubber, and especially the testing of rubber. The work, which is practically a digest of rubber literature, beginning with the first knowledge of rubber in 1493, is brought down to include matters published during March and April of 1910.

The book is well arranged, the sequence of the various subjects being natural and logical, as will be shown by a glance at the table of contents. It is divided into three distinct divisions, which are subdivided into sections. The first division contains a general description of rubber, under the following headings: Section A, History; B, Occurrence of Rubber; C, Properties of Latices; D, Constitution of the Rubber Hydrocarbon; E, Other Substances Occurring with the Rubber Hydrocarbon in Crude Rubber; F, Physical Properties of Crude Rubber; G, Chemical Properties of Crude Rubber; H, Theory of Vulcanization of Rubber; J, Technical Handling and Preparation of Rubber Materials; K, Properties of Vulcanized Rubber.

The second division is devoted to the chemical analysis of rubber, and is by Dr. Hinrichsen. The various subjects covered are as follows: A, Analysis of Crude Rubber; B, Analysis of Vulcanized Rubber; C, Life Tests of Finished or Vulcanized Rubber.

Division 3 covers the mechanical testing of rubber, and is by K. Memmler. Section A deals with strength tests of soft rubber and the methods of carrying out such tests; B, Results of Strength Tests on Soft Rubber According to the Older and Newer Methods of Testing.

This last division is especially complete, and the various methods of mechanical testing of rubber, which have been proposed from time to time, are very fully treated. The section is illustrated with numerous wood cuts and diagrams of apparatus used by various investigators in making their tests, as well as full descriptions of the methods of using these various pieces of apparatus.

This subject of the mechanical testing of rubber deserves a great deal more attention than has been given to it by most authors, and it is indeed gratifying to find that these authors treat the subject so fully. They give not only the results of their own experiments along this line, but also, in considerable detail, a description of the work of other authors and the results obtained by them. The various charts and tables illustrating these descriptions greatly enhance their value.

One other subject, which is treated at some length in various parts of the book, is the optical testing of rubber and rubber resins. This is also a line which will probably prove of great value in the future, and one which, in the opinion of the reviewer, is well worth the attention of experimenters. It might, indeed, furnish the subject of a graduating thesis for many students.

The entire work is well written, and the notes on the literature are admirably clear and full. The book deserves a place on the shelf of every rubber chemist.

THE CEYLON HANDBOOK AND DIRECTORY AND COMPENDIUM of Useful Information for 1910-11, to Which is Prefixed a Statistical Summary for the Colony and Review of the Planting Enterprise up to August, 1910. Compiled - - - under the direction of J. Ferguson, C.M.G. - - - Colombo: A. M. & J. Ferguson. 1910-11. [Cloth. Pp. lxiv + 1576. Price, £1 1s.]

THE Ceylon Handbook and Directory for the years 1910-11 is the same excellent compendium of business information on Ceylon that the previous editions have been. The book is somewhat increased in bulk, which is mainly due to the development of the Ceylon planting industry. Mr. Ferguson estimated that in the middle of 1910 the returns from the planting districts, after being carefully checked by the Colombo mercantile agents, showed that 188,000 acres of rubber were planted or being planted for the season. A good deal of this acreage is interplanted in tea. This interplanted area is estimated at 75,351 acres, while 21,169 acres of cacao are also intermixed with rubber. It is stated, however, that 188,000 acres may be safely taken to represent the land planted with rubber in Ceylon at the time this report was made. The book also devotes considerable attention to the other industries of Ceylon and gives especially full statistics on tea culture. The "Handbook" contains full particulars regarding all of the plantations of rubber and is an exceedingly valuable guide to all business men interested in this industry. This "Handbook" is one of the most complete that has been gotten out.

THE POCKET GUIDE TO THE WEST INDIES. BY ALGERNON E. Aspinall. New and revised edition. London: Duckworth & Co. 1910. [Cloth. 16mo. Pp. 320. Price, 3s. 6d. net.]

THIS Pocket Guide to the West Indies is the second edition of a former publication by the same author. The original publication proved extremely popular and the demand for the book was so large that a second edition was made necessary. In the preface to the present edition it is claimed that much of the matter in the book has been rewritten and that an extra chapter on the Panama Canal has been added. The compiler of the work has taken the greatest care to secure the latest statistics and details with regard to all of the West Indian countries. The book contains many maps and charts and is a thorough compendium of the West Indies. It will prove extremely valuable to any traveler in that section of the globe.

INDISCHE CULTUUR ALMANAK (MET SUPPLEMENT) VOOR 1911. Samengesteld voor A. H. Berkhout en H. C. Prinsen Geerligs, 25e Jaargang. Amsterdam: J. H. de Bussy. 1910. [Cloth. 32mo. Pp. 385. Price, 3 florins.]

THE practical utility of this little work covers the entire year, including, as it does, a complete almanac, showing the various feasts, etc., fixed and movable, not only those observed by Christians, generally and the Roman Catholic Church particularly, but also those of the Israelite, Chinese and Japanese elements in the East Indian population. A memorandum diary, three days to the page, suggests the use of the book as a reminder for duties to be discharged, obligations to be met, etc., on different days, and there is also a fund of statistical and other information relating to the various crops cultivated in this section; weights and measures of the different nations, etc., etc. Professor Berkhout, one of the compilers, was formerly conservator of forests in the Netherlands Indies. The supplement referred to is a pamphlet of sixty-four pages, giving a list of works relating to agricultural, meteorological, entomological and other subjects. The almanac is neatly bound, in pocket form, with receptacle for memoranda, holder for lead pencil and rubber band.

MISSOURI BOTANICAL GARDEN, TWENTY-FIRST ANNUAL REport. St. Louis, Missouri, The Board of Trustees. [Cloth. 8vo. Pp. 195.]

PREFACED with a view of the library and laboratories of the Garden, and embellished with numerous well executed photogravures of botanical specimens; this handsomely printed publication embodies the report of the officers of the Board of Trustees of the Garden, and of the director, covering the year ending December, 1909, also the full text of papers on botanical and kindred subjects, prepared during the year and published by the trustees.

NEW TRADE PUBLICATIONS.

THE Firestone Tire and Rubber Co. (Akron), has issued a little booklet entitled "How to Prevent Laying Up Your Trucks on Account of the Tires." This publication describes the detachable rims of the Firestone company and shows how the life of tires may be prolonged by having them rebuilt before they are too far gone. The publication is well illustrated and is particularly devoted to showing the advantages of the new quick removable side-wire tires [3¼" × 6½". 10 pages.]

THE B. F. GOODRICH CO. (Akron, Ohio). "Motorcycle Tires and Sundries" is the subject of the latest trade publication that reaches us from this company. It bears out their reputation as to typographical taste, while the contents will interest the dealer and the rider—especially the latter. The Goodrich roadster, the Goodrich Bailey tread and the Goodrich white heavy tread, tires on which the company's reputation is founded, are described and illustrated, the construction of each being shown sectionally and the advantages claimed for it set forth in terms that are perfectly comprehensible to the average motorcyclist; and which should furnish the dealer with the basis for some good motorcycle tire talk. The Goodrich motorcycle "tourist grip," butt end tube, Goodrich rubber V-belt, valves and valve stems, patches for punctures, Goodrich vulcanizing solution and Goodrich plastic cement, all well known to the trade as well as to cyclists, make up the portion of the catalogue devoted to sundries. Some useful hints on the care, removing, applying and repairing Goodrich motorcycle tires make up the balance of this attractive booklet. [5½" × 8½". 12 pages.]

THE DIAMOND RUBBER CO. (Akron, Ohio). Profusely illustrated and handsomely printed, a new catalogue of their rubber footwear, distributed by the above company is commendable alike for its comprehensiveness and for the consideration for detail displayed in the descriptive text. With this catalogue, and a knowledge of the requirements of his trade, the retailer can provide himself with a stock that will meet his every requirement. Diamond quality, to which special attention is directed, is a guarantee, alike to dealer and wearer that the goods will prove satisfactory. The catalogue is accompanied by a separate list of net prices. [5" × 7¼". 48 pages.]

THE LA CROSSE RUBBER MILLS CO. (La Crosse, Wisconsin), in fulfilment of their endeavor to place upon the market "the best-wearing lines of rubbers in their respective grades" publish a neatly printed catalogue of their rubber foot-wear, including everything the retail trade is likely to require in this line. The admirable illustrations and lucid descriptions, together with the reputation the company enjoys for owning the latest approved lasts and fitting all up to date shoes, should make this attractive booklet a useful guide to the dealer. A special 8 page list of tennis, recreation, yachting and gymnasium shoes, accompanies the above, the price list being likewise furnished in separate form. [4" × 7". 48 pages.]

THE GUTTA PERCHA AND RUBBER MANUFACTURING CO., OF TORONTO, LTD., publish, for the season 1910-1911, a catalogue and price list of their "Maltese Cross" tennis shoes, superseding all previous issues. Its twelve neatly printed and liberally illustrated 3½" × 6 " pages, convey all the information in regard to these popular goods that the dealer needs in making his selections for a stock.

BEACON FALLS RUBBER SHOE CO., (Beacon Falls, Connecticut) fill 44 closely printed pages, 3½" × 6", with their catalogue and price list of rubber boots, shoes, etc., for 1911. The line is exceptionally complete, embracing everything made in the shape of rubber footwear for men, women and children, the company's trade-mark being accepted by dealers and wearers, as a satisfactory guarantee of quality.

W. D. ALLEN MANUFACTURING CO. (Chicago), manufacturers of brass goods, publish a catalogue and price list of their productions, 10 x 6 ins., covering, with index, 112 pages. The rubber trade will be interested in the complete line of hose sprinklers, couplings, fixtures, nozzles, play-pipes, and other devices used in connection with hose, for garden, fire department and all other purposes, which this well-printed and profusely-illustrated publication displays.

CALENDARS FOR 1911.

LEBANON MILL CO. (Pawtucket, Rhode Island), issued for 1911 one of the handsomest calendars that has been received at this office. This calendar is a work of art, its main feature being a land scene, "Evening on the River." The photogravure is very handsome and the calendar makes an exceedingly attractive wall ornament.

The calendar of the Firestone Tire and Rubber Co. (Akron) for 1911 is illuminated with a large colored picture of two handsome girls in an automobile. The calendar is large and of wall size type and is well adapted to any business office. The Firestone quick detachable clincher tire is the prominent feature in the foreground of the picture.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of the values of exports of manufactures of india-rubber and gutta-percha for the month of December, 1910, and for five calendar years:

MONTHS.	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
December, 1910	$138,333	$172,121	$487,680	$798,134
January to November.	1,918,611	2,094,016	5,193,806	9,206,433
Total, 1910	$2,056,944	$2,266,137	$5,681,486	$10,004,567
Total, 1909	1,800,300	1,653,466	4,413,626	7,867,392
Total, 1908	1,256,490	1,329,170	3,580,685	6,166,345
Total, 1907	1,402,373	1,646,880	3,944,080	6,993,333
Total, 1906	1,162,751	1,213,196	3,282,659	5,658,606

The above heading "All Other Rubber," for the last six months, includes the following details relating to Tires:

MONTHS.		For Automobiles.	All Other.	TOTAL.
July	*values*	$146,080	$56,096	$202,176
August		151,468	71,486	222,954
September		133,735	39,457	173,192
October		103,788	33,469	137,257
November		160,214	37,962	198,176
December		144,645	47,325	191,970

Exports of rubber boots and shoes have been in quantity: 2,440,663 pairs in 1908; 3,150,294 pairs in 1909; 4,157,699 pairs in 1910.

Exports of reclaimed rubber: $327,388 in 1908; $487,675 in 1909; $652,233 in 1910.

IMPORTS INTO THE UNITED STATES.

	1908.	1909.	1910.
India-rubber goods	$1,509,629	$1,390,684	$971,764
Gutta-percha goods	97,593	71,857	79,111
Total	$1,607,222	$1,462,541	$1,050,875

SOME EXPORTS FROM MANCHESTER TO THE UNITED STATES.

TABLE showing the values of declared exports of the following articles from the consular district of Manchester to the United States and the Philippine Islands during the years 1909 and 1910:

DETAILS.	1909.	1910.
India rubber sheets, pouches, etc.	$18,875.65	$64,079.58
Balata and other belting	73,892.29	138,519.77
Waterproof garments and cloth	114,016.96	115,242.93
Brattice cloth	4,045.80	11,153.57
Card clothing	89,432.85	88,730.14
Linoleum	292,440.94	355,044.59

THE RUBBER TRADE IN CINCINNATI

BY A RESIDENT CORRESPONDENT.

THE Republic Rubber Co., is represented in this city by the Motor Car Supply Co. This company has just moved into the tire and automobile zone of the city by opening spacious offices at Eighth and Race streets. The new house is in charge of Charles R. Linson as manager.

* * *

The Auto Interlining Company of Cincinnati has been incorporated with a capital stock of $25,000. The company will make interlining for automobile tires under a new process and will establish a large factory in this city. The intertubing is made under a new patent just secured. The new organization is made up of a number of prominent local business men. William Stacy is president and G. S. McDuff is secretary and treasurer.

* * *

Howard Goodall connected with the Cincinnati branch of the Diamond Rubber Co., has been transferred to the Louisville, Ky. depot, which has just recently been opened by the company in that city. C. A. Dunham, also of the Cincinnati branch has been appointed to look after the sales at the Louisville depot. Manager Simpson of the local branch has transferred C. R. Couden, who has been employed here as adjuster, to the Dayton, Ohio, depot.

* * *

Application has been made to the United States court here, for a stay of proceedings in the common pleas court of Springfield, Ohio, in the case of Mary S. Harshman against the Kansas City Tire and Rubber Co. (Kansas City, Missouri). The request was made on behalf of the trustee in the bankruptcy proceedings instituted against the Kansas City Tire and Rubber Co. Mrs. Harshman seeks to have set aside a conveyance of real estate located in Clark County, Ohio. The trustee in bankruptcy claims that this property belongs to the assets of the bankrupt. The court refused the application, however.

THE RUBBER TRADE AT AKRON.

BY A RESIDENT CORRESPONDENT.

THE last building erected by The B. F. Goodrich Co., a seven-story structure containing over two acres of floor space, will be devoted to the manufacture of solid rubber tires for vehicles and trucks. They are manufacturing a new model auto truck tire called the "Goodrich Quick Detachable." This tire requires no change of wheel measurements as the circumference of the tires is the same as those now in use, the diameter is two inches larger, making a longer wearing tire. The B. F. Goodrich Co. has undertaken the education of the public in the manufacture of rubber goods, by giving moving picture entertainments in various parts of the country. These are provided at the expense of the Goodrich Company, and represent the history of rubber from "Tree to Tire"; tapping the rubber trees in the tropical forests, the preparation of the rubber milk for shipment, the loading of the rubber hams at the large markets, the final loading for foreign ports, and the various steps in the manufacture of the same, up to placing the finished product on the market. The demonstration is complete and the places where these exhibitions are given are crowded. As many as 6,000 people have viewed at one time the giving of this entertainment.

* * *

The Société Française B. F. Goodrich Co. has been incorporated in France to take care of the business of The B. F. Goodrich Co. in France, Italy, England and Germany, and to take charge of the plant recently bought by that company at Colombes, near Paris. The B. F. Goodrich Co. at present are designing special machinery for that plant and expect to have it installed and the plant ready to go ahead with the manufacture of rubber goods some time this summer. The company will put forth special effort in pneumatic and solid tires for motor trucks and carriages. This avoids heavy freight rates, and also the heavy duties now paid on imports of American tires to European countries.

* * *

The Republic Rubber Co. (Youngstown), has declared a stock dividend of 45 per cent. A new issue of $1,000,000 of common stock has been authorized, and will be held in the treasury. An additional $500,000 of preferred stock was authorized, and this is now being disposed of. The company has declared its regular quarterly dividend at the rate of 8 per cent.

The company is building a 5-story addition to its plant to extend the tire and other departments. The increase in common and preferred stock brings the total capital stock of the company up to $4,000,000.

The Republic Rubber Co. of (Pittsburg), was incorporated for $20,000, and will be located at Wood and Water streets, Pittsburg. E. E. Gallup is president, L. H. Irwin secretary, and Willard Fisher, treasurer. It is a selling agency and closely affiliated with the Republic Rubber Co. of Youngstown.

* * *

J. F. Singleton, of the Firestone Tire and Rubber Co., says that better service would be obtained on 90 per cent. of all motor truck tires if the following ten rules are observed:

1. Avoid overloading the vehicle. It places too much strain on the tires.
2. Do not overspeed. If the tires are persistently overtaxed they cannot give their full length of service.
3. Keep the brakes working with equal pressure on each wheel and the axles and wheels trued up.
4. Do not let oil or grease accumulate on the tires. It causes them to decay.
5. Always start the auto before turning the steering wheel.
6. Start and stop gradually. Avoid jerky motions.
7. Do not run your car along street car rails. It grinds off tire edges.
8. Cross car tracks at an angle when possible, and always choose the smoother pathway.
9. Merely resetting or repairing a side wire tire will often double its service. Always have this attended to promptly.
10. Always look well before you buy tires and select the longest wearing and easiest riding in the market.

The Firestone Tire and Rubber Co. has entered into a contract with E. A. Moross, Director of the Atlanta-Pablo Beach Speed Races, March 27-30, to guarantee and furnish three mile a minute tires. These tires have safely withstood a mile in 27.33 seconds over the Florida sands, and Mr. Firestone guarantees that his tires will not only stand three miles a minute but even four, if a car can be obtained to travel at that rate.

* * *

Mr. A. H. Marks, of the Diamond Rubber Co., is quoted as saying: "The working out of the perfect balance of a tire with respect to the correct size of air space in proportion to the width of seating area within the rim was an engineering problem for the tire manufacturer. The result is that no matter what the type of tire, the dimensions are quite definitely established."

"Not all makers work to precisely the same ratios, but in general the size of the tire is not determined by questions involving its appearance on the wheel, its stout or lean look or any mere seeming of great stability. The whole problem must be treated as one calling for the greatest scientific skill. The size of the tire cannot be changed without changing its whole general construction. That is to say, a large tire must have stronger, heavier walls, thicker, heavier tread and greater strength throughout than the tire for a smaller wheel or of smaller cross sectional measurements."

* * *

The Goodyear Tire and Rubber Co. have completed their new tire building, and dedicated the same by giving a dance for the benefit of the Goodyear Relief Association, which was organized January 26, 1909, and which has a present membership of over 500. A temporary floor of maple was laid, 65 feet wide by 400 feet long. The hall was well lighted by electricity, and the interior decorations were elaborate. Music was furnished by the historical Eighth Regiment Band of the Ohio National Guard, McKinley's Own, and by Kruse's Orchestra. There were 40 dances during the evening. The dance was enjoyed by more than

3,000 people, and many hundred people amused themselves with cards. Refreshments were provided in wholesale quantities and served free of charge. This is the latest of the many enjoyable social events that the Goodyear plant has provided. The establishment at present covers a ground of area of 31 acres, has a power plant of 7,500 horsepower, an average number of 3,300 employés, and a capacity of more than 100,000 pounds of product per day. Its success is largely credited to the strenuous efforts of F. A. Seiberling, the present president of the company.

* * *

The Motz Clincher Tire and Rubber Co. have changed their name to the Motz Tire and Rubber Co.

* * *

The Universal Specialty Co. (Princeton, Indiana), recently purchased by the Miller Rubber Co., is being moved to Akron. The Universal Specialty Co. have been manufacturing atomizers and nebulizers. The Miller company expects to make this a separate department.

* * *

The United Rubber Co., located at Barberton, lately affiliated with the Portage Rubber Co., will soon build an addition to their Barberton reclaiming plant.

THE RUBBER TRADE IN SAN FRANCISCO.

BY A RESIDENT CORRESPONDENT.

THE usual satisfactory volume of business for this season, is reported by nearly all the rubber houses, and the prospect of the World's Fair in 1915, promises a general revival of commercial activity and all-around prosperity.

* * *

The B. F. Goodrich Co.'s new store on Market street is practically complete and makes a fine appearance both as to beauty and convenience. R. J. McNeilly, formerly with the Revere Rubber Co., has accepted an engagement with the Goodrich company.

The Goodrich retail store in Seattle is now doing business and is meeting with a fair measure of success in the automobile trade. It is located at 700 East Pike street, and is well equipped to handle this line. The firm is equipping a handsome general store on King street, off Occidental avenue, in the busiest part of the city, which will be opened for business early in March.

* * *

The Western Belting and Hose Co. have taken the agency for the Mt. Vernon Belting Co., whose goods were formerly handled by the Pacific Coast Rubber Co. The business and stock of the latter corporation has been taken over by the newly-organized Gorham-Revere Rubber Co., who are spending a large amount of money on their store on Fremont street, which is being enlarged and re-arranged to accommodate the stock of goods coming over from the Revere Rubber Co. and the Pacific Coast Rubber Co.

* * *

The Gutta Percha and Rubber Mfg. Co. has moved into its new quarters at 34 Fremont street.

The Phoenix Rubber Co. has sold the factory department on First street.

R. H. Pease, president of the Goodyear Rubber Co., and his son, have returned from Portland, where they report everything in good shape; they will leave for the east about the middle of March.

C. E. Matthewson, Pacific Coast manager of the Diamond Rubber Co., has returned from the convention of branch managers in the east. On his way home he stopped at Salt Lake City and established a new firm branch there. This Lake City and western Wyoming to the already extensive territory under his care.

THE RUBBER TRADE AT TRENTON.

BY A RESIDENT CORRESPONDENT.

WILLIAM H. SERVIS, of the Hamilton Rubber Manufacturing Co., has returned from Florida where he and his family recently enjoyed a short sojourn.

The Whitehead Brothers Rubber Co. have recently erected a modern and thoroughly fireproof warehouse.

The Essex Rubber Co. have added a complete line of sheet packing to their regular specialties.

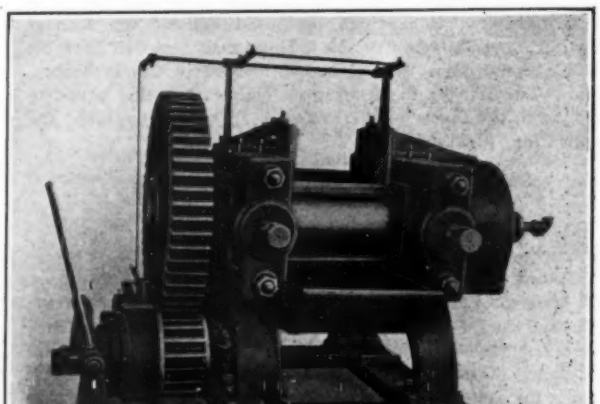
The Combination Rubber Manufacturing Co. (Bloomfield, New Jersey) contemplate the manufacture of automobile tires, preparations for which have been progressing several months.

Oliver Calahan, of this city, was fatally injured by a fall at the plant of Raymond Rubber Co. (Titusville, New Jersey) on February 20; Mr. Calahan, who has been connected with the Raymond Co. for eighteen years, sustained his injuries as a result of a 25-foot fall, causing a broken back, from which he died at St. Francis Hospital. He was well known in Trenton.

Mr. John Broughton, of the United and Globe Rubber Manufacturing Co., has returned from the middle West and reports materially improved conditions and a flattering outlook.

SINGLE-GEARED REFINER.

THE machine illustrated herewith, is a single-geared refiner, or hard rubber dust grinder, of which William R. Thropp & Sons Co. (Trenton, New Jersey) are the builders. The machine, as will be seen, is of very heavy type and is equipped with chilled iron rolls, the roll neck boxes being brass lined where they take their heavy strain. The front



SINGLE GEARED REFINER.
[Or dust grinder.]

roll is 14 ins., the back roll 18 ins. in diameter, 20 ins. long on the face. Two ways of lubricating the journals are provided, one by grease pockets, cast on the inside, the other by means of grease cups on top of housings, with pipes leading into boxes. The small gears, on the end of rolls, are lubricated from cast iron pans, located beneath them, partly filled with grease. In revolving, the teeth of the large gear dip into this, which lubricates them. A steel guard over the top of these gears, prevents anything getting into them and confines the grease to the pan. The machine is equipped with the makers' improved all-iron guides. Another feature of the machine is the improved stuffing boxes, of steam engine type, which are easily adjusted and afford ample room for packing. The steel mill pan, shown in the illustration, is another new feature.

News of the American Rubber Trade.

NEW YORK RUBBER CO.—ANNUAL.

AT the annual stockholders' meeting of the New York Rubber Co. (New York), held January 31, the following trustees were re-elected for the ensuing year: John P. Rider, A. Montgomery, Jr., John Acken, Rufus A. Brown, William H. Lee, Edward S. Woodward and Henry Montgomery. The trustees held a meeting on February 8, at which John P. Rider, who had been for 48 years connected with the company, tendered his resignation as its president, on account of ill health. The resignation was accepted, with expressions of sincere regret and the retiring president was elected chairman of the board of trustees. The following are the officers elected for the current year:

President and Treasurer—John Acken.
Vice-President and Secretary—Henry Montgomery.
Second Vice-President—Henry F. Hering.

CHICAGO RUBBER CLOTHING CO.—ANNUAL.

THE annual meeting of the stockholders of the Chicago Rubber Clothing Co. (Racine, Wisconsin), was held at the company's office, on January 28. Reports showing a satisfactory business during 1910 and prospects of an increase during the current year, were presented and the board of directors of last year re-elected. The board re-elected the officers, as follows:

President—Charles H. Lee.
Treasurer—E. V. Laughton.
Secretary and General Manager—George G. Bryant.

CENTRAL CITY RUBBER CO.—ANNUAL.

THE annual meeting of stockholders of the Central City Rubber Co. (Syracuse, New York), was held in that city on January 28. A satisfactory account of the year's business was presented, enabling the company, although it was the first year of its business, to declare a dividend of 7 per cent. on the preferred shares. It was voted to increase the capital by the sale of $10,000 additional shares, to meet the demands entailed by the growth of the business. The directors elected for the ensuing year were David A. Gould, John R. Graham, A. Park Sager, Daniel A. Pierce and Herbert F. Smith. The board elected officers as follows:

President—David A. Gould.
Vice-President—A. Park Sager.
Secretary and Treasurer—John R. Graham.

THE CANTON RUBBER CO.

AT the annual meeting of stockholders of the Canton Rubber Co. (Canton, Ohio) to be held March 3 a proposition to increase the company's capital stock from $35,000 to $200,000 will be presented for ratification. The rapid expansion of the company's business makes increased manufacturing accommodations imperative and a site has been purchased on Marion street, on which a four-story brick and concrete building, 45 x 250 feet, will be erected, in which, with the best machinery, it will be possible to employ 200 hands in place of the present force of 38.

The business was established in 1898 by R. D. Bradley, its present president, in partnership with Edwin Davis, now the company's vice-president, and starting with a dwelling house, the present factory gradually developed. In 1901 the company was incorporated with a capital of $35,000 under its present title as manufacturers of fine druggists sundries, specialties and pure Pará seamless rubber goods. Since that period their business at home and abroad has grown wonderfully, the increase for last year over the preceding period having been upwards of 50 per cent.

Work on the new factory, for which plans are now nearly completed, will be commenced in April so that the building will be finished by October and available for the fall trade. It will have spur tracks to the Pennsylvania, Baltimore and Ohio railroads and every facility for handling a greatly increased business.

THE YEAR'S BUSINESS OF THE MACKAY COMPANIES.

The report of the year's business of the Mackay Companies, for the twelve months ending February 1, presented at the annual meeting of the trustees, held on February 16, shows total receipts of $4,125,907, an increase of $317,128, as compared with the receipts for the preceding year. The dividends paid on the Mackay Companies, which consist of a majority stock interest in 102 prosperous land and marine telegraph and telephone corporations in the United States, Canada and Europe, including the entire stock of the Commercial Cable Co. and the Postal Telegraph system, was $4,069,020, compared with a distribution of $3,758,667 in 1910. The operating expenses, etc., amounted to $37,194 for 1911, compared with $32,284 for 1910, the increase being due to higher prices paid for labor and to the construction of new land and cable lines. The trustees reported the sale, in February last, of the company's entire holdings in the American Telephone and Telegraph Co., commonly known as the Bell Telephone Co. The expediency of the sale was dictated by changes in the relations between the company in question and the Western Union Telegraph Co., by which the advantages derived by the Mackay Co. from ownership of telephone phone stock, were neutralized. About $12,000,000 was realized from the sale, which was invested intact, at good interest, and is reserved as a contingency fund. In addition the company carried forward a balance of $19,093 to next year's account. An interesting and gratifying feature of the year's business was the increasing extent to which the company's employés are investing their savings in its securities, their holdings now amounting to upwards of two million dollars.

AN ERROR OF OMISSION.

In a notice of a banquet given to the employés of the Mulconroy Co., Inc. (Philadelphia), in the February number of THE INDIA RUBBER WORLD, we referred to the company as "dealers in rubber goods." This was an error of omission which we desire to correct; the company are not only dealers in but manufacturers of rubber goods on quite an extensive scale, their productions including belting, packing, hose, mechanical rubber goods for all purposes, and the well-known "Seven League" rubber boots, their factory being located at No. 816 Appletree street, where they have a capacity for manufacturing 2,500 feet of hose and 100 pairs of boots daily. The "Seven League" rubber boot is a patented article, having rubber uppers on a leather sole, the feature of the patent being the inseparable and waterproof connection of the waterproof leather and rubber sole with the equally durable and waterproof rubber and canvas upper.

BOSTON RUBBER HOSE AND RUBBER CO. DIVIDEND.

THE directors of the Boston Woven Hose and Rubber Co. (Boston), have declared a quarterly dividend of two dollars and a half ($2.50) per share on the common stock, payable March 15, 1911, to stockholders of record, March 4, 1911.

A MILLION DOLLAR RUBBER COMPANY IN MAINE.

The certificate of organization of the Asia Rubber Co. of America, provides that the purpose of said company is to manufacture and trade in india-rubber, its ingredients and by-products, and such gums, minerals, etc., as may be needed for incorporation with it in its manufacture; the acquisition of such property, machinery, raw material, etc., as may be required in carrying on the business, and the purchase, leasing, holding, renting, etc., of such processes, mechanical devices, patents, inventions, improvements, etc., as may be needed in connection therewith, and to issue, hold or sell stocks, bonds, or other obligations that may be needed in acquiring possession of any corporation engaged in similar businesses, either domestic or foreign, to carry on the business of transporting freight or passengers, on

any waters whereon its vessels may navigate, etc. The company is to have its headquarters at Augusta, Me., and the amount of the capital stock is stated at one million dollars in 50,000 shares of twenty dollars per share.

NEW INCORPORATIONS.

AMERICAN Tire Co., December 19, 1910, under the laws of Missouri; capital $10,000. Incorporators: N. W. McLeod, W. E. Grayson, and M. A. Dees—all of St. Louis, Missouri. The company has been formed to manufacture and market an inner casing.

The Atlantic Punctureless Tire Co., January 18, 1911, under the laws of New Jersey; authorized capital $10,000. Incorporators: August Kleinatland, George Herrmann, Charles Stansbury, and Peter L. Alberse—all of Paterson, New Jersey.

Boston Rubber Reclaiming Co., January 9, 1911, under the laws of Massachusetts; authorized capital $60,000. Incorporators: Benjamin W. Chase, Somerville; Albion B. Clapp, Wellesley Hills, Massachusetts, and S. M. Macdonald, Medford, Massachusetts.

Independent Rubber Co., January 31, 1911, under the laws of Ohio; authorized capital $10,000. Incorporators: A. G. Rogers, A. J. Rowley, Grace A. Sirdefield, Loyd R. Read, and R. H. Nesbitt. Principal office of the company is located at Akron, Ohio.

Miegel Rubber Manufacturing Co., February 6, 1911, under the laws of Connecticut authorized capital $25,000. Incorporators: Charles William Miegel, William T. DeWaters, and Charles L. Thompson—all of Stamford, Connecticut.

Peerless Tire and Manufacturing Co., January 9, 1911, under the laws of Illinois; capital $25,000. Incorporators: Frederick Dickinson, Irving J. Solomon, and Edwin D. Lawlor. Principal office of the company is located at No. 1610 Michigan avenue, Chicago, Illinois.

United States Tire Co., February 1, 1911, under the laws of New York; authorized capital $500,000. Incorporators: Elisha S. Williams, Larchmont, New York; Homer E. Sawyer, No. 56 West Thirty-third street, New York City; Joseph M. Gilbert, Mt. Vernon, New York.

Boyd Rubber Co., January 13, 1911, under the laws of Maine; capital $100,000. Directors: John H. Pierce, president; Frederick J. Laughlin, treasurer; Ernest M. White, Sidney St. F. Thaxter, and Frederick L. Jerris—all of Portland, Maine. David W. Snow, of Portland, is clerk of the company.

Brazil Rubber, Timber and Land Co., December 24, 1910, under the laws of Delaware; authorized capital $4,000,000. Incorporators: George McEwen Malcolm, Charles Cable—both of No. 17 Cedar street, New York; Hayward Augustus Harvey, Orange, New Jersey, and James M. Satterfield, Dover, Delaware.

Cataract Rubber Co., January 4, 1911, under the laws of New York; capital $500,000. Incorporators: Herbert J. Jaynes, Alden; Harold V. Cook, Hamburg; and J. Neil Mahoney, Buffalo—all of New York.

DOMINION RUBBER CO.

THE DOMINION RUBBER CO., LIMITED (St. Jerome, P. Q., Canada), is now operating the old plant of the Boston Rubber Shoe Co. in that city. This plant has been lying idle for five years and is now being used for the manufacture of tennis footwear. The Canadian Consolidated Rubber Co., Limited (Montreal), is the selling agent for the Dominion company.

HENTSCHEL-KEMTER TIRE CO.

ACCORDING to information sent to THE INDIA RUBBER WORLD by the Hentschel-Kemter Tire Co. (Union Hill, New Jersey), the incorporation of which, under the laws of New Jersey, was mentioned in our February 1 issue, the purposes of the corporation are for "manufacturing and dealing in a new automobile tire, which is so constructed as to make it punctureproof. The tire cannot blow out, explode or flatten and will wear twice as long as an ordinary tire. The prices will be practically the same as the standard up-to-date tires of the present day. The shoe is specially constructed and the studs are made to give the longest possible wear. It is a cushion shoe and the metal studs are of an entirely new pattern from those now used." It is claimed that this tire will do away with such accessories as inner tubes, valves, air pumps, tire sleeves, and so on.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for four weeks ending February 18:

COMMON STOCK, $25,000,000.
[The treasury of a subsidiary company holds $1,334,000.]
Last Dividend, April 30, 1900—1%.

Week January 28	Sales	6,100 shares	High	39¾	Low 37⅛
Week February 4	Sales	11,070 shares	High	42¾	Low 39
Week February 11	Sales	4,700 shares	High	41⅞	Low 40⅜
Week February 18	Sales	17,600 shares	High	44⅞	Low 41½

For the year—High, 44⅞, Feb. 17; Low, 36, Jan. 6.
Last year—High, 52½; Low, 27.

FIRST PREFERRED STOCK, $39,824,400.
Last Dividend, January 31, 1911—2%.

Week January 28	Sales	925 shares	High	110¾	Low 109⅞
Week February 4	Sales	2,660 shares	High	112	Low 110
Week February 11	Sales	900 shares	High	111⅞	Low 111½
Week February 18	Sales	1,535 shares	High	113	Low 111⅝

For the year—High, 113, Feb. 18; Low, 109½, Jan. 18.
Last year—High, 116½; Low, 99.

SECOND PREFERRED STOCK, $9,965,000.
Last Dividend, January 31, 1911—1¼%.

Week January 28	Sales	300 shares	High	73½	Low 72⅞
Week February 4	Sales	1,820 shares	High	75	Low 72½
Week February 11	Sales	500 shares	High	75	Low 73¾
Week February 18	Sales	835 shares	High	76½	Low 75

For the year—High, 76½, Feb. 17; Low, 72½, Jan. 31.
Last year—High, 84; Low, 59½.

SIX PER CENT. TRUST GOLD BONDS, $19,000,000.
Outstanding of the 1908 issue of $20,000,000.

Week January 28	Sales	16 bonds	High	103¾	Low 103⅝
Week February 4	Sales	40 bonds	High	103¾	Low 103½
Week February 11	Sales	55 bonds	High	104	Low 103½
Week February 18	Sales	39 bonds	High	103⅞	Low 103½

For the year—High, 104, Feb. 11; Low, 103, Jan. 7.
Last year—High, 104½; Low, 101¾.

E. J. McCORMICK RUBBER CO.

THE IMPERIAL RUBBER WORKS (New York) announces under date of January 11, the change of its firm name to E. J. McCormick Rubber Co. The management of the concern, also the address, 26 West Broadway, New York, remain the same. The circular letter, through which the announcement of the change is made, is accompanied by a list of reduced prices which went into effect on February 1.

TRADE NEWS NOTES.

Instead of putting anti-skids on both rear wheels as is the universal custom among automobilists, Michelin advises one on the rear wheel, and the other on the right forward wheel. As a rule Michelin knows.

The New Jersey Car Spring and Rubber Co., of Jersey City, has changed the location of its New York offices from No. 1841 Broadway to the Hudson Terminal Building, 30 Church street. The company has also opened a Boston office in charge of Mr. C. A. Clark.

Mr. W. A. Williams, assistant general superintendent and chief chemist of The North British Rubber Co., Limited, of Edinburgh, was in the States during the past month on several matters of business.

CONVERSE RUBBER SHOE CO. (Malden, Massachusetts) have taken the first steps toward the replacement of the building recently destroyed by fire that caused them a loss of $250,000. A gang of workmen are clearing away the debris preparatory to starting work on the new structure, which will be 60 x 120 ft., of brick and reinforced concrete, that will form an extension to the present building.

GROWTH OF THE RUBBER HEEL BUSINESS.

HUMPHREY O'SULLIVAN advises THE INDIA RUBBER WORLD that he is not connected in any official way with The O'Sullivan Rubber Co., recently incorporated in Delaware, to take over the business in rubber heels which he built up under the same name at Lowell, Massachusetts. [See I. R. W., January 1, page 138.] Mr. O'Sullivan retains his connection as treasurer with The Merrimack Clothing Co., at Lowell. The Delaware company has a capitalization of $1,600,000, of which $600,000 is preferred and $1,000,000 common stock. The preferred is to pay 7 per cent. per annum, and is to be retired from the surplus earnings so that the common stock in time is expected to become very valuable.

GUGGENHEIM'S (!) RUBBER TRUST.

IT is not easy to see the utility of such information as appears in this news item from the Lewiston (Maine) *News*, of January 14. To everybody in the rubber trade it will appear a very surprising, original, and exclusive piece of news; as for people outside the trade, all rubber news seems to look alike to them.

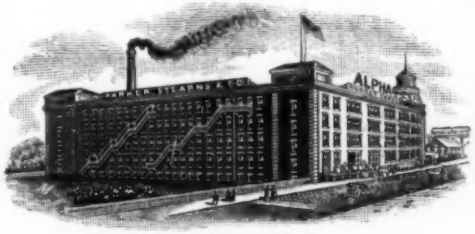
GUGGENHEIM WINS THE RUBBER.

Guggenheim's rubber trust, reinforced by the Aldrich schedules, has made $8,500,000 profit the last year, and has built a new plant in Aldrich's city of Providence out of the odd change of $500,000, passing over to millionaire promoters a trifling balance of eight millions. Financing Aldrich's enterprises is easy. Aldrich does not need Morgan's help. Aldrich improvidently promotes industries in his own city, at the expense of the consumer. The rubber trust increased its business in 1910 over 1909 about 20 per cent! Meantime gum shoes cost more under the Aldrich tariff.

If the *News* really wants to instruct the public, why doesn't it print the name and location of any rubber company that makes profits of $8,500,000 in a year? Also, the connection of any of the persons mentioned in its article with the said rubber company. Furthermore, what does the tariff—or the musical glasses, or the Tower of Babel—have to do with the matter? Specific answers to these questions might afford THE INDIA RUBBER WORLD information of importance which is wholly unknown in the rubber trade.

AN UP-TO-DATE RUBBER MILL.

THE accompanying cut shows the new factory of Parker-Stearns & Co., located at Sheffield and Georgia avenues, Brooklyn, New York. The building is a substantial six-story struc-



PARKER-STEARNS & CO.'S NEW FACTORY.

ture of fireproof construction, and fitted throughout with an automatic sprinkling system. The practical departments are equipped with up-to-date machinery and appliances best adapted to the successful production of a complete line of drug and stationers' sundries, surgical and hospital appliances, automobile accessories and a variety of rubber specialties. A recent adjunct of the shipping department is the addition of several motor trucks. The company does a large domestic and foreign business.

IT REALLY DOES NOT SEEM as if our rubber manufacturers were getting all the South American business they are entitled to. Take Brazil for instance. One-half of the crude rubber exported from Brazilian ports comes to the United States and it would appear logical and reciprocal that half of the imports of manufactured rubber going into that country should be American goods. But the fact is that less than one-seventh of the rubber goods imported into Brazil are American. Practically our only rubber exports to that country are druggists' sundries. American tires, hose and footwear are almost unknown in Brazil. To be sure their gross rubber imports are not large; in fact, not much over a half million a year; still of that amount we get only about $75,000. We certainly ought to do much better than this.

BUSINESS FAILURES IN THE UNITED STATES.

AN indication of interest in relation to business conditions in the United States is derived from the yearly statistics of business failures compiled by the New York journal, *Bradstreet's*. Fewer failures than in 1909 or 1908, but more than in 1907 or 1906, with larger liabilities than in 1909, but smaller than in 1908 or 1907, were the features of the 1910 report to *Bradstreet's*. More failures occurred in the northwest, while the south showed the largest decrease. More than one-sixth of all liabilities were due to banking suspensions. A considerable part of the increase in banking liabilities over 1909 is explained by the final shutting down of banks which suspended in 1907, but resumed later. Owing to the larger number of those in business and the lessened number of failures, the commercial death rate was lower in 1910 than in all but two of the past 29 years.

Bank clearings for 1910 aggregated $161,786,328,803, a loss of 1.5 per cent. from 1909, when the figures were of record volume. Declining tendencies in the final six months of the year offset gains made theretofore.

TRADE NEWS NOTES.

William H. Scheel (No. 159 Maiden lane, New York), is sending out circulars descriptive of the merits of his imported English terra alba, German black fillers, French oxide of zinc, and Indian red and Italian talc. He stands ready to fill all orders for this class of goods with the best possible materials.

The B. F. Goodrich Co. (Akron), is now sending out its annual souvenir picture, a portrait by Carroll Beckwith. The Goodrich girl of this year is named Beatrix, and the picture is that of a very handsome woman, and is accompanied by a personal letter signed with that name. This is the twenty-third annual souvenir issued by the company, the first having appeared in 1889.

The Amsterdam Rubber Co. (New York), whose headquarters have been at No. 107 Duane street for the last four years, expects to remove on May 1 to a larger store at No. 142 Duane street.

The jobbers handling the brands of rubber footwear sold by the United States Rubber Co., are receiving framed pictures of the various mills where their respective brands are made. These pictures are about 20 x 34 ins., and give very faithful representations of the different mills. They are printed on tinted paper, and framed in Flemish oak, and the result is not only a good picture of the mills represented, but something that is distinctly ornamental to any wall.

While the export business in rubber footwear from this country has never assumed the proportions that it might properly have been expected to reach, still it evidently covers a very considerable territory, as will be seen from the fact that the Candee Rubber Co. alone sends out advertising in seven different languages, viz.: French, German, Armenian, Turkish, Greek, Arabic and Hebrew.

The net value of the rubber footwear produced in this country last year is placed by those familiar with the subject at $45,000,000. The total value of the rubber footwear in 1860 was $795,000. The industry was then eighteen years old and it had not yet reached the million mark, while in the last fifty years it has increased at an average of nearly a million a year.

AMERICAN MANUFACTURERS AND THE RUBBER EXHIBITION.

AT present, quality rather than quantity should be the watchword in international exhibitions, if visitors are to find them informing. This applies to rubber exhibitions just as emphatically as to exhibits of any other name or nature. It would be very easy to fill the whole of a great exhibition hall with miles of rubber belting, tons of tires, and carloads of shoes, but to what end? The present status of the American industry could be far better illustrated by an intelligent grouping of well-chosen samples. Such a composite exhibit, reflecting the state of the art, were it complete would be a wonderful advertisement for American manufacturers.

There is no likelihood that such an exhibit will be made. There will be, however, certain rubber manufacturers from the Americas, who will show a varied line of goods typically American. The basic reason that more will not be present as exhibitors, is because most are still satisfied to supply only the home market and do not seek export trade. General attention, however, is being directed more and more toward the great markets of the world, and within a decade, such a rubber exhibition as that which begins in London in June of this year, will of necessity contain scores instead of half a dozen of notable American exhibits.

TENTH EXHIBITION OF AUTOMOBILES, ETC.

JUDGING from the voluminous and profusely illustrated catalogue, published under the auspices of the Chambre Syndicale de L'Automobile et du Cycle de Belgique, the Tenth Exhibition of the Automobile of the Bicycle of Sports and Aeronautics, held at the Palais due Cinquantenaire, Brussels, from January 14 to 25, was a pretentious and well patronized affair. The catalogue is embellished with portraits of the King of the Belgians, the mayor of the city of Brussels, under whose joint patronage the exposition was held, as well as with portraits of men prominent in the automobile and bicycle trades, and in the field of aviation in Belgium, and also contains lists of the members of the Chambre Syndicale, of the exhibitors and the articles exhibited, the latter part of the programme being notably well arranged and showing an exceedingly interesting and comprehensive line of exhibits in the shape of cars, bicycles and accessories of every description.

Review of the Crude Rubber Market.

SINCE our last report there has been a considerable advance in prices, which have steadily risen during the past month.

Practically all grades have been affected, and are in buoyant tendency. At the close of the month, Upriver fine new was quoted $1.64@$1.65, as against $1.24@$1.25 at its opening. The quotation on Plantation smoked sheet on February 28, was $1.83 @$1.84, an advance from the February first figure of $1.40@$1.41. This increase is ascribed to manipulation rather than to radically heavier demand, though there is no doubt of a slightly increased call, usually incidental to a rising market. As a matter of fact, the indisposition of operators to enter the market for other than "immediate necessity" reasons, during the past several months has naturally exerted a more or less depressing effect on prices, and the present advance consequently affords a pronounced contrast. The current trend is higher, and it is not improbable that prices will advance within the immediate future.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago, and February 28—the current date:

PARA.	Mar. 1, '10.	Feb. 1, '11.	Feb. 28.
Islands, fine, new	199@200	112@113	152@153
Islands, fine, old	201@202	none here	none here
Upriver, fine, new	212@213	124@125	164@165
Upriver, fine, old	214@215	128@129	166@167
Islands, coarse, new	89@ 90	65@ 66	89@ 90
Islands, coarse, new	128@129	96@ 97	117@118
Islands, coarse, old	none here	none here	none here
Upriver, coarse, new	128@129	96@ 97	117@118
Upriver, coarse, old	129@130	100@101	119@120
Cametá	97@ 98	69@ 79	93@ 94
Caucho (Peruvian), ball	130@131	94@ 95	117@118
Caucho (Peruvian), sheet	101@102	none here	none here
PLANTATION PARA.			
Fine smoked sheet	230@231	140@141	183@184
Fine pale crepe	—@—	124@125	168@170
Fine sheets and biscuits	—@—	118@119	158@159
CENTRALS.			
Esmeralda, sausage	117@118	90@ 91	107@108
Guayaquil, strip	none here	none here	none here
Nicaragua, scrap	116@117	88@ 89	105@106
Panama	none here	none here	none here
Mexican, scrap	115@116	86@ 87	104@105
Mexican, slab	none here	50@ 51	65@ 66
Mangabeira, sheet	85@ 86	68@ 70	72@ 73
Guayule	75@ 76	60@ 61	75@ 76
Balata, sheet	—@—	82@ 84	95@ 96
Balata, block	—@—	58@ 67	72@ 73
AFRICAN.			
Lopori, ball, prime	152@153	109@110	132@133
Lopori, strip, prime	none here	none here	none here
Aruwimi	none here	105@106	125@126
Upper Congo, ball, red	133@134	109@110	132@133
Ikelemba	none here	none here	none here
Sierra Leone, 1st quality	135@136	105@106	135@136
Massai, red	136@137	106@107	135@136
Soudan niggers	none here	94@ 95	none here
Cameroon, ball	94@ 95	62@ 63	88@ 90
Benguela	88@ 89	75@ 76	80@ 81
Madagascar, pinky	110@112	none here	105@106
Accra flake	30@ 31	40@ 41	43@ 44
EAST INDIAN.			
Assam	100@101	90@ 91	105@106
Pontianak	6¾@ 7	6@6⅛	7¼@7½
Borneo	none here	none here	none here

Late Pará cables quote:

Per Kilo.		Per Kilo.
Islands, fine 7$000	Upriver, fine	9$000
Islands, coarse 3$800	Upriver, coarse	7$000
	Exchange	16 1-16

Latest Manáos advices:

Upriver, fine 9$200	Exchange 16 1-16
Upriver, coarse 4$900	

African Rubbers.

NEW YORK STOCKS (IN TONS).

January 1, 1910	228	August 1, 1910	250
February 1	134	September 1	300
March 1	161	October 1	375
April 1	121	November 1	100
May 1	125	December 1	140
June 1	90	January 1, 1911	115
July 1	120	February 1	115

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.

	Fine and Medium	Coarse.		Total 1911.	Total 1910.	Total 1909.
Stocks, January 1.....*tons*	181	30	=	211	207	244
Arrivals, January.....	888	464	=	1,352	2,040	1,778
Aggregating	1,069	494	=	1,563	2,247	2,022
Deliveries, January	866	455	=	1,321	2,015	1,787
Stocks, January 31.....	203	39	=	242	232	235

	PARA.			ENGLAND.		
	1911.	1910.	1909.	1911.	1910.	1909.
Stocks, January 1, *tons*	675	150	695	1,490	385	775
Arrivals, January	3,620	4,500	4,335	1,038	810	1,190
Aggregating	4,295	4,650	5,030	2,528	1,195	1,965
Deliveries, January ...	2,530	3,480	3,955	1,303	850	1,785
Stocks, January 31..	1,765	1,170	1,075	1,225	345	180

	1911.	1910.	1909.
Worlds visible supply, January 31.....*tons*	4,582	4,083	3,540
Pará receipts, July 1 to January 31.....	17,020	19,470	18,410
Pará receipts of caucho, same dates	2,950	2,920	2,840
Afloat from Pará to United States, Jan. 31.	465	1,160	890
Afloat from Pará to Europe, January 31....	885	1,170	1,080

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York), advises as follows: "During February the demand for commercial paper has been very good, both from city banks and out of town, at easy rates, the best rubber names ruling at 4½@4¾ per cent. and those not so well known at 5@5½ per cent."

NEW YORK PRICES FOR JANUARY (NEW RUBBER).

	1911.	1910.	1909.
Upriver, fine	$1.15@1.30	$1.78@1.87	$1.20@1.22
Upriver, coarse	.90@ .98	1.11@1.15	.90@ .92
Islands, fine	1.00@1.15	1.67@1.81	1.13@1.16
Islands, coarse	.62@ .69	.71@ .75	.55@ .59
Cametá	.64@ .73	.79@ .85	.62@ .64

British Crude Rubber Imports.

OFFICIAL statistics for ten calendar years, stated in pounds:

Year.	Imports.	Exports.	Net Imports.
1901	52,245,088	32,904,704	19,340,384
1902	46,970,000	32,676,112	14,293,888
1903	54,443,760	37,658,768	16,784,992
1904	55,555,584	33,415,536	22,140,048
1905	66,464,944	37,464,112	29,000,832
1906	67,992,624	36,988,336	31,004,288
1907	74,736,928	39,090,912	35,646,016
1908	64,407,392	40,153,792	24,253,600
1909	78,406,944	44,567,488	33,839,456
1910	98,220,416	52,401,664	45,818,752

GUTTA-PERCHA.

Year.	Imports.	Exports.	Net Imports.
1901	9,905,056	1,224,832	8,680,224
1902	9,395,568	1,190,784	8,204,784
1903	5,198,032	741,664	4,456,368
1904	3,056,256	890,624	2,165,632
1905	5,088,608	1,020,880	4,067,728
1906	5,966,352	973,952	4,992,400
1907	6,516,048	1,268,624	5,247,424
1908	3,575,936	521,920	3,054,016
1909	5,064,864	680,736	4,384,128
1910	10,870,048	762,608	10,107,440

Liverpool.

WILLIAM WRIGHT & Co., report [February 1]:

Fine Pará.—The market has been active, mainly owing to speculative manipulation, with considerable fluctuation in price. During the early part of the month prices declined 7*d.* per pound, but this has since been fully recovered and values at the close are about the same as last month. The late advance is mainly due to the combination of Brazilian receivers. How long they will be able to force up prices time will tell, but for the present the tendency is towards a further enhancement of values. Pará receipts are small and the crop at present is 2,290 tons less than last season. There is talk of a permanent shortage this season; time will prove if this is correct. Closing values: Upriver 5*s.* 7*d.* [=$1.36]; Islands 5*s.* [=$1.22].

Rotterdam Rubber Statistics.

INDIA-RUBBER.

	1908.	1909.	1910.
Stocks, January 1.....kilos	86,800	55,000	40,000
Arrivals during year.....	1,273,400	1,146,470	1,138,450
Aggregating	1,360,200	1,201,470	1,178,450
Deliveries during year.....	1,305,200	1,161,470	1,026,850
Stocks, December 31.....	55,000	40,000	151,600

BALATA (SURINAM SHEET).

Stocks, January 1.....*kilos*	nil	18,000	nil
Arrivals during year.....	330,000	540,000	543,000
Aggregating	330,000	558,000	543,000
Deliveries during year.....	312,000	558,000	543,000
Stocks, December 31.....	18,000	nil	nil

GUTTA-PERCHA.

Stocks, January 1.....*kilos*	121,300	110,500	100,500
Arrivals during year.....	37,800	26,000	14,400
Aggregating	159,100	136,500	114,900
Deliveries during year.....	48,600	36,000	112,400
Stocks, December 31.....	110,500	100,500	2,500

Amsterdam.

F. JOOSTEN reports [February 3]:

The lots offered today in tendersale met with fair competition and of the total quantity of about 19,500 kilos about 16,100 kilos were sold at about valuations for the better and somewhat below valuations for the lower grades. Demand continued after the sale for most of the unsold lots but owners refused to make the moderate concessions proposed.

IMPORTS FROM PARA AT NEW YORK.

The Figures Indicate Weight in Pounds.

JANUARY 23.—By the steamer *Acre*, from Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co..	44,000	5,000	24,800	4,400=	78,200
A. T. Morse & Co.....	26,800	4,900	38,300	1,300=	71,300
Poel & Arnold	1,800	700	37,000	9,200=	48,700
Hagemeyer & Brunn.....	28,000	.....	10,800	.....=	38,800
H. A. Astlett.....	6,800	1,100	5,900	.....=	13,800
Total	107,400	11,700	116,800	14,900=	250,800

JANUARY 24.—By the steamer *Cearense*, from Manáos and Pará:

Poel & Arnold	210,600	76,400	60,600	14,900=	362,500
A. T. Morse & Co.....	206,100	25,600	57,700	900=	290,300
New York Commercial Co..	30,900	17,600	37,200	19,500=	105,200
Henderson & Korn.....	13,900	1,600	20,100	.....=	35,600
Total	461,500	121,200	175,600	35,300=	793,600

JANUARY 25.—By the steamer *Gregory*, from Iquitos:

G. Amsinck & Co.....	72,100	6,400	18,100	22,500=	119,100
Thomsen & Co.....	28,500	2,900	9,600	9,800=	50,800
H. A. Astlett.....	28,900	5,000	13,000	4,900=	51,800
W. R. Grace & Co.....	7,600	.....	3,300	1,200=	12,100
P. C. Kuyper & Co.....	7,200	.....	.....	.....=	7,200
Total	144,300	14,300	44,000	38,400=	241,000

FEBRUARY 3.—By the steamer *Christopher*, from Manáos and Pará:

Poel & Arnold.....	191,200	63,300	158,400	22,200=	435,100
New York Commercial Co..	115,400	18,800	71,400	14,000=	219,600
A. T. Morse & Co.....	34,700	7,700	88,000	9,400=	139,800
Henderson & Korn.....	10,000	.....	36,800	23,400=	70,200
Total	351,300	89,800	354,600	69,000=	864,700

FEBRUARY 11.—By the steamer *Goyaza*, from Pará:

Henderson & Korn.....	22,500	2,000	40,100	3,100=	67,700
A. T. Morse & Co.....	50,300	.....	4,000	.....=	54,300
Hagemeyer & Brunn.....	21,400	.....	17,200	.....=	38,600
Total	94,200	2,000	61,300	3,100=	160,600

FEBRUARY 16.—By the steamer *Polycarp*, from Manáos and Pará:

Poel & Arnold	131,500	44,400	98,300	139,100=	413,300
A. T. Morse & Co.....	74,200	11,000	113,100	106,800=	305,100
New York Commercial Co..	18,300	11,400	26,000	115,200=	170,900
Henderson & Korn.....	26,500	7,800	28,100	3,700=	66,100
G. Amsinck & Co.....	2,100	1,300	.....	.....=	3,400
Total	252,600	75,900	265,500	364,800=	958,800

PARA RUBBER VIA EUROPE.

		POUNDS.
JAN. 23.—By the *Campania*=Liverpool:		
Robinson & Co. (Fine)	18,000	
N. Y. Commercial Co. (Fine)	17,000	
Poel & Arnold (Fine)	15,000	50,000
JAN. 23.—By the *Laurentic*=Liverpool:		
A. T. Morse & Co. (Coarse)	4,500	
Rubber Trading Co. (Caucho)	8,000	12,500
JAN. 27.—By the *Mauretania*=Liverpool:		
Poel & Arnold (Caucho)	5,500	
Robinson & Co. (Fine)	2,500	8,000
FEB. 3.—By the *Lusitania*=Liverpool:		
N. Y. Commercial Co. (Coarse)	45,000	
Poel & Arnold (Caucho)	22,500	67,500
FEB. 11.—By the *Campania*=Liverpool:		
C. P. dos Santos (Coarse)	9,000	
James T. Johnstone (Fine)	2,500	11,500
FEB. 15.—By the *Clyde*=Mollendo:		
General Rubber Co. (Fine)	2,500	
General Rubber Co. (Caucho)	2,500	5,000
FEB. 17.—By the *President Lincoln*=Hamburg:		
N. Y. Commercial Co. (Fine)		13,500
FEB. 17.—By the *Mauretania*=Liverpool:		
Robinson & Co. (Fine)	34,000	
Poel & Arnold (Fine)	5,500	39,500

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

		POUNDS.
JAN. 23.—By the *Panama*=Colon:		
G. Amsinck & Co.	13,000	
Fidanque Bros. & Co.	4,500	
A. T. Morse & Co.	3,000	
Isaac Brandon & Bros.	1,000	21,500
JAN. 23.—By the *Vigilancia*=Tampico:		
Ed. Maurer	*135,000	
Poel & Arnold	*26,000	
For Europe	*25,000	*186,000
JAN. 23.—By the *Frutera*=Honduras:		
George A. Alden & Co.	2,500	
Wessels Kulenkampff & Co.	2,500	
A. Rosenthal & Sons.	1,000	6,000
JAN. 23.—By the *Stavangeren*=Bluefields:		
Manhattan Rubber Manufacturing Co.	10,000	
Atlantic Fruit Co.	2,000	12,000
JAN. 24.—By the *Allemannia*=Colombia:		
Caballero & Blanco	5,500	
A. Held	2,500	
R. Del Castillo & Co.	2,000	
Delima Cortissoz & Co.	1,500	
G. Amsinck & Co.	1,500	
Ogliascri & Martinez	1,000	
Maitland, Coppell & Co.	1,000	
Iglesias Lobo & Co.	1,000	
Suzarte & Whitney	1,000	17,000
JAN. 26.—By the *Esperanza*=Mexico:		
Iglesias Lobo & Co.	9,000	
Harburger & Stack	2,000	
George A. Alden & Co.	1,000	
H. Marquardt & Co.	1,000	
International Products Co.	1,000	14,000
JAN. 30.—By the *Allianca*=Colon:		
G. Amsinck & Co.	5,500	
Dumarest Bros. & Co.	5,500	
New York Commercial Co.	5,500	
Isaac Brandon & Bros.	4,000	
Charles E. Griffin	3,000	
Roldan & Van Sickle	3,000	
Hirzel, Feltman & Co.	2,500	
Frank Lapiedra	2,500	
L. Johnson & Co.	3,000	34,500
JAN. 30.—By the *Prinz Eitel Friedrich*=Colombia:		
Caballero & Blanco	2,500	
Kunhardt & Co.	2,500	
L. Johnson & Co.	3,000	
Lionel Hagenaers & Co.	2,000	10,000
JAN. 31.—By the *Comus*=New Orleans:		
A. T. Morse & Co.	7,500	
Robinson & Co.	3,500	
A. N. Rotholz	3,000	
Eggers & Heinlein	2,500	16,500
FEB. 1.—By the *Sarnia*=Greytown:		
G. Amsinck & Co.	7,000	
A. Held	3,000	
Pablo Calvert & Co.	1,000	
Delima Cortissoz & Co.	1,000	12,000
FEB. 3.—By the *Mexico*=Frontera:		
Harburger & Stack	6,500	
Rubber Trading Co.	3,500	
Mexican Produce Co.	1,500	
J. W. Wilson & Co.	1,000	
H. Marquardt & Co.	1,000	
George A. Alden & Co.	1,000	14,500
FEB. 3.—By the *Santiago*=Tampico:		
Ed. Maurer	*125,000	
Continental-Mexican Rubber Co.	*75,000	
New York Commercial Co.	*70,000	
For Europe	*55,000	*325,000
FEB. 6.—By the *Colon*=Colon:		
G. Amsinck & Co.	17,000	
L. Johnson & Co.	9,000	
Wessels Kulenkampff & Co.	4,000	
J. Julia & Co.	2,000	
R. Arebella Co.	2,000	
Piza, Nephews & Co.	4,000	
Maitland, Coppell & Co.	2,000	
P. V. Rubio & Co.	2,000	
Dumarest Bros. & Co.	1,500	
A. T. Morse & Co.	2,000	
J. Sambrada & Co.	1,500	
Isaac Brandon & Bros.	1,500	
Mecke & Co.	1,500	
Gillespie Bros. & Co.	1,000	
American Trading Co.	1,000	
A. Rosenthal & Sons.	1,000	53,000
FEB. 6.—By the *Seguranca*=Tampico:		
Continental-Mexican Rubber Co.	*185,000	
New York Commercial Co.	*100,000	
Ed. Maurer	*55,000	
For Europe	*55,000	*395,000
FEB. 6.—By the *Proteus*=New Orleans:		
Robinson & Co.		10,000
FEB. 6.—By *El Oriente*=Galveston:		
Continental-Mexican Rubber Co.	*85,000	
Charles T. Wilson	*22,500	
E. S. Churchill	*7,000	*114,500
FEB. 10.—By the *Morro Castle*=Frontera:		
E. Steiger & Co.	5,000	
H. Marquardt & Co.	4,500	
La Zacualpa Rubber Plantation Co.	2,000	
Rubber Trading Co.	1,500	
International Products Co.	1,500	
Harburger & Stack	1,000	15,500
FEB. 10.—By *El Cid*=Galveston:		
Continental-Mexican Rubber Co.	*112,000	
Charles T. Wilson	*8,000	*120,000
FEB. 10.—By the *Advance*=Colon:		
J. Sambrada & Co.	3,000	
G. Amsinck & Co.	2,000	
Mecke & Co.	1,000	
A. M. Capen's Sons	1,000	
Dumarest Bros. & Co.	1,000	
A. Held	1,000	
Isaac Brandon & Bros.	1,000	10,000
FEB. 11.—By the *Campania*=Liverpool:		
C. P. dos Santos		9,000
FEB. 14.—By the *Stavangeren*=Bluefields:		
Manhattan Rubber Manufacturing Co.		6,000
FEB. 14.—By the *Antilles*=Tampico:		
Ed. Maurer	*95,000	
New York Commercial Co.	*67,000	
Continental-Mexican Rubber Co.	*45,000	*207,000
FEB. 14.—By the *Eastern Prince*=Bahia:		
Poel & Arnold	13,500	
J. H. Rossbach & Bros.	3,500	17,000
FEB. 14.—By *El Sud*=Galveston:		
Continental-Mexican Rubber Co.	*235,000	
Charles T. Wilson	*15,000	*250,000
FEB. 14.—By the *Prinz Sigismund*=Colombia:		
A. Held	3,500	
Kunhardt & Co.	3,500	
Lionel Hagenaers & Co.	3,500	
R. Del Castillo & Co.	2,000	
A. Jaranillo & Co.	1,500	
G. Amsinck & Co.	1,500	
For Hamburg	5,500	21,000
FEB. 15.—By the *Sarnia*=Colon:		
G. Amsinck & Co.	8,000	
Maitland, Coppell & Co.	5,500	
Mecke & Co.	2,500	
A. M. Capen's Sons	2,500	
W. R. Grace & Co.	2,500	
Pablo Calvet & Co.	2,000	
Suzarte & Whitney	1,500	
A. Rosenthal & Sons.	1,500	
Wessels Kulenkampff & Co.	1,000	
American Trading Co.	1,000	
Roldan & Van Sickle	1,000	
Delima Cortissoz & Co.	1,000	
Isaac Brandon & Bros.	1,000	31,000
FEB. 16.—By the *Frutera*=Honduras:		
A. Rosenthal & Sons.	6,500	
West Coast Rubber Co.	1,000	
Schlutte Bauman Co.	1,000	
George A. Alden & Co.	1,000	9,500
FEB. 16.—By the *Comus*=New Orleans:		
A. N. Rotholz		10,000
FEB. 17.—By the *Mauretania*=Liverpool:		
Poel & Arnold		8,000
FEB. 17.—By the *Panama*=Colon:		
G. Amsinck & Co.	11,500	
American Trading Co.	3,000	
J. Julia & Co.	2,500	
Wessels, Kulenkampff & Co.	2,500	
Meyer Hecht	1,500	
F. Rosenstein & Co.	1,500	
Piza, Nephews & Co.	1,000	
Isaac Brandon & Bros.	1,000	24,500

AFRICAN.

		POUNDS.
JAN. 23.—By the *Campania*=Liverpool:		
George A. Alden & Co.	15,500	
Poel & Arnold	13,500	
Raw Products Co.	13,500	
Rubber Import Co.	5,500	48,000
JAN. 23.—By the *Moltke*=Hamburg:		
A. T. Morse & Co.	7,000	
Robert Badenhop	4,500	11,500
JAN. 25.—By the *Dinnamare*=Lisbon:		
George A. Alden & Co.		11,500
JAN. 25.—By the *Vaderland*=Antwerp:		
A. T. Morse & Co.	22,500	
Livesey & Co.	7,000	
Wallace L. Gough Co.	4,500	
James T. Johnstone	4,500	38,500
JAN. 27.—By the *Mauretania*=Liverpool:		
Poel & Arnold	22,500	
Robinson & Co.	2,500	25,000
JAN. 28.—By the *Palermo*=Lisbon:		
A. T. Morse & Co.		11,000
JAN. 31.—By the *Arabic*=Liverpool:		
Poel & Arnold	11,500	
Rubber Trading Co.	9,000	
George A. Alden & Co.	7,000	
James T. Johnstone	7,000	34,500
FEB. 3.—By the *Finland*=Antwerp:		
A. T. Morse & Co.		75,000
FEB. 3.—By the *Chicago*=Havre:		
Robert Badenhop		11,500
FEB. 3.—By the *Lusitania*=Liverpool:		
Poel & Arnold		7,000
FEB. 3.—By the *Florida*=Bordeaux:		
Raw Products Co.		7,000
FEB. 4.—By the *Pennsylvania*=Hamburg:		
Poel & Arnold	37,000	
George A. Alden & Co.	13,500	
A. T. Morse & Co.	6,000	
General Rubber Co.	11,500	
Rubber Trading Co.	13,500	
Wallace L. Gough Co.	5,500	
Robert Badenhop	3,500	90,500
FEB. 6.—By the *Baltic*=Liverpool:		
George A. Alden & Co.	5,000	
Rubber Trading Co.	2,000	7,000
FEB. 8.—By the *Kroonland*=Antwerp:		
George A. Alden & Co.	75,000	
A. T. Morse & Co.	25,000	
Poel & Arnold	7,000	
Wallace L. Gough Co.	9,000	
Rubber Trading Co.	9,000	125,000

RUBBER FLUX

No. 17. Particularly adapted to softening material for tubing machine. Almost universally used for waterproofing wire.

No. 48. For fluxing pigments in compounding. A valuable adjunct to the manufacture of moulded goods as it DOES NOT BLOW UNDER CURE.

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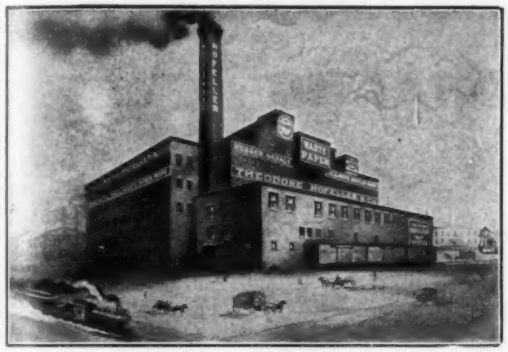

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INSULATED WIRE

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Dielectric and pressure tests are increased by replacing all so-called substitutes with our Mineral Rubber.

Our product enables you to increase the speed of wire thru the insulating head of the tubing machine without breaking or ruffling the surface of the rubber. It will also retard oxidization to a wonderful extent.

We are now supplying 60% of the insulated wire factories making rubber covered wire, but we would like to have the other 40% investigate and get acquainted with the special qualities our Hydro-Carbon has for their particular requirements.

Will you try out a free working sample? If so, won't you please drop us a line simply saying "Will investigate your Mineral Rubber if you will send us a free sample"?

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Boston New York

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Specialties in Weaving

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FFF, FF, GS and SM.

Headquarters for

Surinam and Demerara Sheet Balata
Venezuelan Block Balata

Ceylon Plantation Rubber

---

97 WATER STREET . NEW YORK

FEB. 9.—By the *Adriatic*=London:

Poel & Arnold		11,500

FEB. 10.—By the *Canadian*=Liverpool:

Rubber Trading Co.		11,500

FEB. 11.—By the *Campania*=Liverpool:

James T. Johnstone	11,500	
Henry A. Gould Co.	7,000	
C. P. dos Santos	7,000	25,500

FEB. 14.—By the *La Gascogne*=Havre:

Poel & Arnold	44,500	
James T. Johnstone	4,500	
Robert Badenhop	3,500	52,500

FEB. 17.—By the *President Lincoln*=Hamburg:

A. T. Morse & Co.	20,000	
George A. Alden & Co.	6,500	
Wallace L. Gough Co.	22,500	
Livesey & Co.	11,500	
Robert Badenhop	2,500	63,000

FEB. 17.—By the *Mauretania*=Liverpool:

Poel & Arnold	5,500	
Henry A. Gould Co.	4,500	10,000

EAST INDIAN.

[*Denotes plantation rubber.]

		POUNDS.
JAN. 23.—By the *Campania*=Liverpool:		
William H. Stiles		*15,000
JAN. 23.—My the *Minnetonka*=London:		
New York Commercial Co.	*34,000	
Poel & Arnold	*15,000	
A. T. Morse & Co.	*11,500	
Robinson & Co.	*11,500	72,000
JAN. 25.—By the *Vaderland*=Antwerp:		
A. T. Morse & Co.		*13,500
JAN. 25.—By the *Oceanic*=London:		
Poel & Arnold	*45,000	
New York Commercial Co.	*9,000	
William H. Stiles	*9,000	*63,000
JAN. 26.—By the *Hudson*=Singapore:		
Ed. Maurer	*5.500	
Wallace L. Gough Co.	*27,000	
Mayalsian Rubber Co.	*17,000	
Wallace L. Gough Co.	33,500	
Ed. Maurer	11,500	
Haebler & Co.	4,500	99,000
JAN. 30.—By the *Wildenfels*=London.		
New York Commercial Co.	*55,000	
A. T. Morse & Co.	*13,500	
Thomsen & Co.	*9,000	*77,500
FEB. 2.—By the *Mesaba*=London:		
A. T. Morse & Co.	*13,500	
Raw Products Co.	*5,500	*19,000
FEB. 3.—By the *Finland*=Antwerp:		
A. T. Morse & Co.		*45,000
FEB. 3.—By the *St. Paul*=London:		
Poel & Arnold	*90,000	
New York Commercial Co.	*55,000	
A. T. Morse & Co.	*15,500	
Robinson & Co.	*11,000	*171,500
FEB. 3.—By the *Lusitania*=Liverpool:		
William H. Stiles	*11,500	
Henderson & Korn	*9,000	*20,500
FEB. 6.—By the *Minnetonka*=London:		
Poel & Arnold	*34,000	
James T. Johnstone	*13,500	
Ed. Maurer	*6,500	
New York Commercial Co.	*5,500	59,500
FEB. 8.—By the *Kroonland*=Antwerp:		
A. T. Morse & Co.		*55,000
FEB. 8.—By the *Indrapura*=Singapore:		
Ed. Maurer	20,000	
Wallace L. Gough Co.	5,500	25,500
FEB. 9.—By the *Adriatic*=London:		
New York Commercial Co.		*22,000
FEB. 11.—By the *Trautenfels*=Colombo:		
New York Commercial Co.	*35,000	
A. T. Morse & Co.	*30,000	
Thomsen & Co.	*20,000	*85,000
FEB. 14.—By the *Minneapolis*=London:		
New York Commercial Co.	*25,000	
Poel & Arnold	*20,000	*45,000
FEB. 14.—By the *Bisley*=Singapore:		
Wallace L. Gough Co.		*9,000
FEB. 15.—By the *Gothland*=Antwerp:		
A. T. Morse & Co.		*16,000
FEB. 16.—By the *St. Louis*=London:		
Poel & Arnold	*15,000	
New York Commercial Co.	*2,000	*17,000
FEB. 16.—By the *Aragonia*=Singapore:		
Ed. Maurer	*11,500	
Malaysian Rubber Co.	8,000	
Wallace L. Gough Co.	*5,500	
Ed. Maurer	5,500	
Poel & Arnold	7,000	
Haebler & Co.	11,000	48,500

GUTTA-JELUTONG.

		POUNDS.
JAN. 26.—By the *Hudson*=Singapore:		
L. Littlejohn & Co.	500,000	
Haebler & Co.	275,000	
Wallace L. Gough Co.	250,000	
George A. Alden & Co.	125,000	
Robinson & Co.	100,000	
Poel & Arnold	100,000	1,350,000
FEB. 8.—My the *Indrapura*=Singapore:		
L. Littlejohn & Co.		135,000
FEB. 14.—By the *Bisley*=Singapore:		
L. Littlejohn & Co.	210,000	
Haebler & Co.	175,000	
Wallace L. Gough Co.	56,000	441,000
FEB. 15.—By the *Aragonia*=Singapore:		
Wallace L. Gough Co.	150,000	
Haebler & Co.	125,000	
L. Littlejohn & Co.	175,000	450,000

BALATA.

		POUNDS.
JAN. 25.—By the *Suriname*=Trinidad:		
G. Amsinck & Co.	5,500	
Suzarte & Whitney	2,500	
Ed. Maurer	2,000	10,000
FEB. 8.—By the *Guiana*=Demerara:		
Middleton & Co.		7,000
FEB. 14.—By the *Saramacca*=Trinidad:		
G. Amsinck & Co.	11,500	
Middleton & Co.	5,500	
Bartling & De Leon	2,000	19,000

GUTTA-PERCHA.

		POUNDS.
JAN. 26.—By the *Hudson*=Singapore:		
L. Littlejohn & Co.	25,000	
Ed. Maurer	33,500	
Wallace L. Gough Co.	22,500	81,000
FEB. 4.—By the *Pennsylvania*=Hamburg:		
Robert Soltau & Co.		15,000
FEB. 8.—By the *Indrapura*=Singapore:		
L. Littlejohn & Co.	45,000	
Haebler & Co.	30,000	75,000
FEB. 14.—By the *Bisley*=Singapore:		
Haebler & Co.		45,000
FEB. 15.—By the *Aragonia*=Singapore:		
Ed. Maurer	25,000	
L. Littlejohn & Co.	45,000	70,000
FEB. 17.—By the *President Lincoln*=Hamburg:		
Robert Soltau & Co.		15,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—JANUARY.

	Pounds.	Value.
Imports:		
India-rubber	5,744,852	$5,281,502
Balata	122,199	87,607
Gutta-percha	84,086	16,187
Gutta-jelutong (Pontianak)	5,458,187	247,061
Guayule	1,288,300	637,820
Total	12,697,624	$6,270,177
Exports:		
India-rubber	194,799	$147,002
Balata	45,173	38,513
Gutta-percha	.....	.....
Guayule	26,972	11,274
Reclaimed rubber	41,610	5,138
Rubber scrap, imported	964,620	$79,669
Rubber scrap, exported	269,427	28,019

BOSTON ARRIVALS.

JAN. 4.—By the *Winifreda*=Liverpool:

Poel & Arnold (Africans)	11,200	
George A. Alden & Co. (Africans)	3,500	14,700
JAN. 12.—By the *Ivernia*=Liverpool:		
George A. Alden & Co. (Africans)		11,500
JAN. 30.—By the *Idrapura*=Singapore:		
State Rubber Co. (East Indian)	37,000	
State Rubber Co. (Jelutong)	800,000	
Wallace L. Gough Co.	125,000	962,000

PARA EXPORTS OF INDIA-RUBBER FOR 1910 (IN KILOGRAMS).

EXPORTERS.	NEW YORK. Fine.	Medium.	Coarse.	Caucho.	TOTAL.	EUROPE. Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Gruner & Co.—Pará, Dusendschön, Zarges & Co.—Manáos	2,665,512	560,758	1,406,530	733,811	5,366,611	3,463,293	359,391	945,308	1,984,342	6,752,334	12,118,945
Scholz, Hartje & Co., Pará, Scholz & Co., Manáos	954,382	229,511	518,329	240,617	1,942,839	1,844,560	217,350	331,987	692,859	3,086,756	5,029,595
Ad. H. Alden, Ltd., Pará-Manáos	1,184,849	297,563	576,634	395,029	2,454,075	1,088,558	285,001	504,244	435,730	2,313,533	4,767,608
E. Pinto Alves & Co., Pará	880,820	26,498	1,098,231	23,793	2,029,342	992,622	87,247	224,533	295,621	1,600,023	3,629,365
Gordon & Co., Pará-Manáos	1,094,684	215,417	366,632	40,776	1,717,509	582,140	123,986	158,718	556,158	1,421,002	3,138,511
J. Marques, Pará	268,177	32,063	232,229	3,063	535,532	616,569	100,387	282,673	236,473	1,236,102	1,771,634
Suárez Hermanos & Co., Pará-Manáos	.....	.....	.....	.....	.....	809,416	18,304	103,437	304,338	1,235,495	1,235,495
R. O. Ahlers & Co., Pará, Ahlers & Co., Manáos	86,696	340	15,823	127,470	230,329	355,007	5,281	67,921	90,200	518,409	748,738
The Alves Braga Rubber Estates & Trading Co., Ltd.	.....	.....	.....	.....	.....	408,208	60,129	81,577	33,910	583,824	583,824
De Lagotellerie & Co., Pará-Manáos	119,529	17,332	52,626	2,802	192,289	67,017	24,569	28,573	25,503	145,662	337,951
Pires Teixeira & Co., Pará	53,380	.....	82,500	.....	135,880	58,650	.....	57,750	.....	116,400	252,280
S. A. Armazens Andresen, Manáos	.....	.....	.....	.....	.....	67,448	23,083	31,039	103,299	224,869	224,869
Mello & Co., Pará-Manáos	20,331	6,170	3,586	667	30,754	81,080	9,708	21,054	27,373	139,215	169,969
J. G. Araujo, Manáos	9,710	1,861	11,518	2,374	25,463	44,614	8,930	45,686	7,059	106,289	131,752
Leite & Co., Incorp., Pará-Manáos	.....	.....	.....	.....	.....	61,565	11,276	6,740	2,122	81,703	81,703
E. Kingdom & Co., Manáos	4,709	425	1,154	22,693	28,991	14,914	5,497	4,684	14,824	39,919	68,900
Gunzburger & Co., Manáos	.....	.....	1,260	1,230	2,490	1,368	540	3,025	60,015	64,949	67,439
Guilherme Aug. de Miranda Filho, Pará	11,400	5,382	13,258	3,436	33,476	8,695	1,814	10,714	.....	21,223	54,699
Braga Sobrinho & Co., Pará	.....	.....	.....	.....	.....	15,563	2,663	7,250	2,980	28,456	28,456
Sundries	52,530	11,900	75,470	2,523	142,423	328,289	100,060	137,039	280,662	846,050	988,473
Itacoatiara direct	10,049	1,922	5,648	64	17,683	49,527	8,751	35,066	3,929	97,273	114,956
Iquitos direct	83,652	5,169	27,680	58,313	174,814	714,199	52,785	293,413	1,259,445	2,319,842	2,494,656
Total	7,500,410	1,412,311	4,489,108	1,658,661	15,060,490	11,673,302	1,506,752	3,382,432	6,416,842	22,979,328	38,039,818

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Rubber Receipts at Manaos.

DURING December and six months of the crop season, for three years (courtesy of Messrs. Scholz & Co.):

	DECEMBER.			JULY-DECEMBER.		
FROM—	1910.	1909.	1908.	1910.	1909.	1908.
Rio Purús-Acre ... *tons*	556	423	775	4,054	3,898	3,846
Rio Madeira	229	379	453	1,641	2,017	1,917
Rio Juruá	667	550	838	1,203	1,491	1,825
Rio Javary-Iquitos	324	265	536	1,441	1,779	1,763
Rio Solimões	251	244	158	804	709	667
Rio Negro	58	171	105	71	261	124
Total	2,085	2,032	2,865	9,214	10,155	10,142
Caucho	301	349	884	1,412	1,882	1,954
Total	2,386	2,381	3,749	10,626	12,037	12,096
For Shipment from						
Manáos	1,974	2,038	3,264	8,278	9,621	9,993
Pará	412	343	485	2,348	2,416	2,103
Total	2,386	2,381	3,749	10,626	12,037	12,096

Antwerp.

RUBBER STATISTICS FOR JANUARY.

DETAILS.	1911.	1910.	1909.	1908.	1907.
Stocks, January 1..*kilos*	588,212	541,512	595,735	1,006,894	658,184
Arrivals in January....	549,956	261,867	283,955	547,968	317,692
Congo sorts	403,421	202,547	186,189	504,451	242,806
Other sorts	146,535	59,320	97,766	43,517	74,886
Aggregating	1,138,168	803,379	879,690	1,554,862	975,876
Sales in January.....	492,749	321,217	281,913	294,853	357,226
Stocks, January 31....	645,419	482,162	597,777	1,260,009	618,650
Arrivals since Jan. 1..	549,956	261,867	283,955	547,968	317,692
Congo sorts	403,421	202,547	186,189	504,451	242,806
Other sorts	146,535	59,320	97,766	43,517	74,886
Sales since Jan. 1.....	492,749	321,217	281,913	294,853	357,226

RUBBER ARRIVALS FROM THE CONGO.

JANUARY 27.—By the steamer *Albertville:*

Bunge & Co.	(Société Générale Africaine) *kilos*	104,000	
Do	(Chemins de fer Grands Lacs)	5,700	
Do	(Cie. du Kasai)	64,800	
Do	(Belkika)	500	
Do	(Comptoir Commercial Congolais)	14,200	
L. & W. Van de Velde		3,000	
Charles Dethier	(American Congo Co.)	2,450	194,650

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to December 31, 1909 and 1910. Compiled by the Ceylon Chamber of Commerce.]

	1909.	1910.
To United States ... *pounds*	470,812	1,610,395
To Canada		7,476
To Great Britain	830,339	1,572,119
To Belgium	35,908	76,827
To Germany	21,309	16,956
To Australia	8,893	5,858
To Japan	.....	4,951
To Italy	1,113	1,909
To France	1,639	1,120
To Austria	213	1,041
To China	2,184	.....
Total	1,372,416	3,298,652

[Same period 1908—831,905 pounds; same 1907—530,908.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

FROM—	1908.	1909.	1910.
Singapore (to Dec. 31) ... *pounds*	2,060,238	2,412,617	3,764,877
Penang (to Dec. 31)	1,468,584	2,088,133	2,454,907
Port Swettenham (to Dec. 26)	.....	2,960,320	8,349,523
Total	3,528,822	7,461,070	14,569,307

Para.

R. O. AHLERS & Co. report [February 1]:

It seems certain that the Brazilian government is attempting a valorization scheme for rubber, on lines simular to those adopted for coffee. Considerable initial purchases have been made at prices well above the Liverpool parity, but details of the scheme have not yet been made public. As there is every appearance of a short crop on the Amazon, there is undoubtedly some prospect of better prices.

Rubber Scrap Prices.

LATE NEW YORK quotations—prices paid by consumers for carload lots, per pound—are practically unchanged, as follows:

	February 1.	March 1.
Old rubber boots and shoes—domestic	9¼@ 9⅜	9¼@ 9⅜
Old rubber boots and shoes—foreign	8¾@ 8⅞	8⅝@ 8¾
Pneumatic bicycle tires	4½@ 4¾	4½@ 4¾
Automobile tires	8¼@ 8¾	8¼@ 8⅜
Solid rubber wagon and carriage tires	8½@ 9	8½@ 9
White trimmed rubber	11 @11½	11 @11½
Heavy black rubber	5 @ 5½	4¾@ 5¼
Air brake hose	4¾@ 5	4¾@ 5
Garden hose	2 @ 2¼	2 @ 2¼
Fire and large hose	2½@ 2¾	2½@ 2¾
Matting	1 @ 1⅛	1 @ 1⅛